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# The Application of Audiometric Data Base Analysis to Selected Air Force Bases

by

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A technical report submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Science in Environmental Engineering in the Department of Environmental Sciences and Engineering, School of Public Health.

Chapel Hill, 1995

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#### **Abstract**

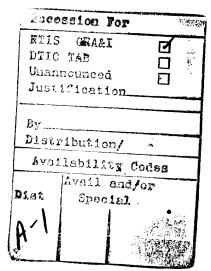
This paper focuses on using Audiometric Data Base Analysis (ADBA) to evaluate the effectiveness of the hearing conservation program (HCP) at eight Air Force Bases. The primary goal is to evaluate the effectiveness of the HCP for all eight bases combined. The secondary goal was determining which groups of personnel are experiencing the most variability in their hearing threshold levels (HTLs).

The ADBA results revealed that the total group exhibited a program that was between marginal and unacceptable. Breaking the total group's audiometric data into smaller groups did not reveal a significantly different variability by group with the exception of gender. Females had significantly less variability in their mean HTLs when compared to males.

The standard deviation of differences of HTLs measure did not give similar results to the other measures. The use of the standard deviation of difference of HTLs measure is not recommended for use under the present guidelines.

An overall distribution of TWAs (time weighted averages) for the total group showed a fairly normal distribution with the 50th percentile at 85 dBA (A frequency-weighted sound pressure level). The 10th percentile is 77 dBA and 90th percentile is 94 dBA for the total

population.



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#### Introduction

Currently, noise exposure and audiometric data are collected and maintained for all personnel in the United States Air Force (USAF) HCP. The audiometric data are maintained in a central database. The noise exposure data are kept in separate databases at each Air Force Base (AFB). Individual's noise exposure and audiometric data are maintained in their medical records and evaluated but no group analysis is routinely done. The goal of this study was to merge the sound survey data from each database with the audiometric data and do an overall quality assurance review of the HCPs included in the study.

The data for the study came from several sources. The audiometric data (70,777 records on 14,166 individuals) came from the Hearing Conservation Data Registry (HCDR) in the Occupational and Environmental Health Directorate, Armstrong Laboratory, Brooks AFB, TX. Noise exposure data came from databases at each base. The medium size bases use a database called BEEKEEPER to store noise exposure data. The large bases use a database called PHOENIX to store the noise exposure data. In addition, the required personnel data were obtained from the Military Personnel Center, Randolph AFB TX.

The primary method for evaluating the HCPs is the ADBA protocol defined in the Draft American National Standard Institute (ANSI) Standard S12.13-1991 - Evaluating the Effectiveness of Hearing Conservation Programs. ADBA evaluates variability in HTLs using three different methods.<sup>4</sup> The results can be used to classify the overall HCP as acceptable, marginal or unacceptable.

Each ADBA procedure is discussed and used to evaluate the USAF data studied. First, an overall quality evaluation is carried out for the total group. Then the individual data groups are evaluated. Finally, the findings for the total and subset data bases are presented and a comparison of the findings across data bases are discussed.

Since the standard is a draft publication for use and comment, this is an excellent time to evaluate the USAF programs with the different methods and see how they compare and provide comments to the ANSI working group.

#### **Background**

Prevention of occupational hearing loss is the primary goal of a HCP. However to prevent hearing loss, HCP personnel need to be able to detect developing Noise Induced Permanent Threshold Shifts (NIPTS) before significant hearing loss occurs. Audiometric Data Base Analysis (ADBA) offers the potential for detecting problems in the HCP (such as noise induced hearing loss) quickly before significant hearing loss can occur.

ADBA has several other advantages. It provides data that can be used to develop simple charts and graphs that may be used in education sessions for presenting to supervisors and employees the effectiveness of the HCP in their department, providing motivation for the HCP. ADBA has also been used by HCP personnel to compare the effectiveness of different hearing protective devices and to demonstrate to management the effectiveness of, or lack of, dollars spent on the HCP. 11

The only valid objective indication of whether a HCP is succeeding in preventing occupational hearing loss is audiometric results for the noise-exposed employees. Review of selected individual audiometric records provides information on the hearing changes for

the individuals. However, this review process does not give an overall picture of how well a group of workers are being protected. 11

The ADBA procedures are based on various ways of measuring year-to-year audiometric variability. A properly protected noise-exposed population should not have any more variability in their hearing threshold levels than for a population not exposed to significant occupational noise exposure assuming all other sources of variability are controlled.<sup>4</sup> For a more detailed discussion of ADBA please refer to previous publications in the literature. 5-10,12

The sources of audiometric variability include normal fluctuations in the responsiveness of individuals, inconsistencies in equipment calibration, testing methods used and true threshold changes due to temporary or permanent hearing loss. 11 With personnel moving between bases on a regular schedule every three to five years, these variables may be hard to control and assess. Therefore, the movement of personnel may be a major source of variability in HTLs.

#### **USAF HCP**

The USAF HCP is administered by Aerospace Medicine. A three pronged approach is used. Bioenvironmental Engineering conducts sound level meter and noise dosimetry surveys and evaluates noise controls. Military Public Health conducts supervisor training and issues hearing protective devices. Physical Exams provide audiometric exams. Each group is part of Aerospace Medicine which coordinates these efforts through the occupational medicine working group. 1,2

The USAF does not follow the requirements of the Occupational Safety and Health Administration (OSHA) noise standard. It uses different criteria. To describe the USAF HCP criteria, a few definitions are needed. First, the criterion level is the 8 hour equivalent that results in a 100% noise dose measurement. Next, exchange rate defines the increase or decrease in sound level for a corresponding halving or doubling of exposure time. The exchange rate is also called the trading ratio or doubling rate. Finally, Leq, T is the equivalent continuous A frequency-weighted sound level over a time T. If T is 8 hours, Leq, 8 becomes the time-weighted average, or TWA.

The USAF program presently uses a criterion level of 85 dBA and a 3 dB (decibel) exchange rate. Individuals are allowed noise exposures unprotected less than 85 dBA. USAF members are placed on the HCP if the TWA equals or exceeds 85 dBA and hearing protection is required. Previously, the USAF used a criterion level of 84 dBA and a 4 dB exchange rate. The use of the current criterion level and exchange rate started in December 1993.

#### Characteristics of the Studied Air Force Bases

Eight AFBs were selected for this study, two large bases and six medium size bases. The two large bases were Kelly AFB (San Antonio, TX) and Robins AFB (Warner-Robins, GA). Both bases are primarily air logistic centers and perform depo level maintenance on aircraft. The six medium size bases were Langley AFB (Hampton VA), Shaw AFB (Sumter, SC), Seymour-Johnson AFB (Goldsboro, NC), Pope AFB (Fayetteville, NC), Charleston AFB (Charleston, SC) and Randolph AFB (Universal City, TX). Langley, Shaw, Seymour-Johnson and Pope AFBs are primarily fighter bases. Charleston AFB is primarily a transport base. Randolph AFB is primarily a pilot training base.

## **Group Descriptive Statistics**

To assess the HCP programs, only personnel with at least four sequential audiograms were used. This limited the total group size considerably (14,166 to 6655 individuals). The last four sequential tests are renumbered so the most recent test is test 4 and the next most recent test is test 3, etc.

The audiometric data are divided into several different groups for comparison purposes. First, a total group is formulated that includes personnel from all eight AFBs. Next, the total group is split into military and civilian groups and into male and female groups. Additionally, the total group is split into groups based on ethnic classifications. Last, the total group is broken down further into individual AFB data bases. Appendix C lists group descriptive statistics for each group. Statistics listed include the number of USAF personnel included in each group and the average age and average service length for each test.

#### ADBA Criteria

In applying the ADBA procedures defined by the Draft ANSI S12.13-1991 standard, the data should "ideally" (but not an absolute requirement) meet certain requirements. The audiograms should have been given approximately yearly with the maximum interval between tests less than eighteen months. The population data base should be restricted to the same subjects over the period of analysis. A minimum number of audiograms is suggested for each subject of the population and the population should be representative of all employees, with a minimum of 30 people per analysis group. The audiometric data should be collected during the work shift, so temporary threshold shifts as well as developing permanent threshold shifts can be detected by the ADBA procedures. Finally

the data should be checked for possible contamination (includes re-test results, obviously major shifts in HTLs across test frequencies, etc.) before analysis.<sup>4</sup>

The ANSI standard presents three measures of variability in hearing threshold levels for use when comparing sequential audiograms. The three measures are:

- 1. Percent Worse Sequential (%W<sub>S</sub>): percent of population showing a 15 dB shift toward worse hearing in either ear at any test frequency (0.5 to 6 kilohertz, kHz) in sequential test comparisons.
- Percent Better or Worse Sequential (%BW<sub>S</sub>): percent of population showing a
   dB shift toward better or worse hearing in either ear at any test frequency (0.5 to 6 kHz) in sequential test comparisons.
- 3. Standard Deviation of Differences in Hearing Threshold Levels ( $S_X$ ): is calculated using the differences averaged across ears, X, at the audiometric test frequencies of 0.5 to 6 kHz between sequential hearing thresholds of N individuals. The standard deviation,  $S_X$ , is calculated as follows:

$$S_x = \sqrt{\frac{\sum X^2 - \frac{\left(\sum X\right)^2}{N}}{N - 1}},$$

where X is the difference between sequentially averaged hearing thresholds, and N is the number of individuals.

Criterion ranges for evaluating the results from applying the three ADBA measures are given in appendix A, tables 1 and 2. The criteria utilized depends on which set of

sequential audiograms are being compared, the true first four (1-2, 2-3 and 3-4) for a population or later audiograms (4-5, 5-6, 6-7, 7-8, etc.). Table 1 is for the  ${}^{9}W_{S}$  and  ${}^{9}BW_{S}$  measures. Table 2 is for the  $S_{X}$  measure at individual test frequencies.

#### Results

Appendix A, table 3 shows the results of applying the ADBA procedures to the last four tests for the total group and sub-groups using the  $%W_S$  and  $%BW_S$  measures. Also indicated in the table is the 95% confidence intervals for each measure calculated. Appendix A, table 4 presents the results for the  $S_X$  measure for the total group. Appendix A, table 5 shows the mean HTLs vs. mean age and frequency for each group.

The data for appendix A, tables 3, 4 and 5 are taken from the ADBA outputs. The ADBA outputs were generated using the PC-Hearval  $^{13}$  Audiometric Data Base Analysis Program for use with PC-compatible computers. Appendix D presents the first page output of the CMPALL.EXE program that generates baseline and sequential test comparison results. The different overall comparison criteria are shown. The data discussed herein ( $^{9}$ W<sub>S</sub> and  $^{9}$ BW<sub>S</sub>) corresponds to category 8, which is shown blocked in.

Appendix E presents, pages E-1 to E-3, the shift results for all eight AFBs for the test comparisons 1-2, 2-3 and 3-4. As an example, on page E-1, the shift data (in 5 dB increments for the left, right and combined ear HTLs) is shown. In addition, the mean and standard deviation of the shift data is shown. Finally, at the bottom of the page is the summed shift data by category. As noted earlier, category 8 presents the %W<sub>S</sub> and %BW<sub>S</sub> data presented herein.

## Total Group and Individual AFB Groups

Appendix B, figure 1 presents the  $\%W_S$  data for the total group and each individual AFB. Looking at figure 1, the HCP ratings are generally in the marginal range. The total group's  $\%W_S$  measure varied from 23 to 27%. Most of the data are overlapping and it is hard to distinguish between the individual groups. The exception is the Seymour-Johnson AFB data. The data from Seymour-Johnson exhibited the smallest group size (n=80) for comparison and the highest variability in HTLs ( $\%W_S$  from 20 to 45%).

Appendix B, figure 2 presents the %BW<sub>S</sub> data for total group and each individual AFB. Most of these data points are in the lower unacceptable to marginal range. The total group has a %BW<sub>S</sub> measure ranging from 40 to 43%. Once again the Seymour-Johnson AFB data are generally higher than the rest of the data (41 to 54%). Charleston and Shaw AFBs also have higher %BW<sub>S</sub> measures than the total group (45 to 48 % and 45 to 50%). The rest of the bases have similar %BW<sub>S</sub> measures to the total group. Based on the %W<sub>S</sub> and %BW<sub>S</sub> measures, the total group and most of the individual AFB group findings are in the upper marginal to lower unacceptable range. Appendix E contains the shift results from the total group of all eight AFBs. Appendix F presents the shift results for each individual AFB.

#### Sx Measure

Appendix A, table 4 presents the results for the  $S_X$  measure for the total group. Using the  $S_X$  measure, shown in appendix B, figure 3, the total group has an acceptable HCP (all frequencies have lower standard deviations than listed in appendix A, table 2). The individual AFB groups have similar  $S_X$  measures as the total group. The failure of the  $S_X$  measure to identify unacceptable HCPs has been noted by the ANSI S12.13 working group, and the standard deviation of differences ADBA measure was therefore dropped. Therefore, the  $S_X$  findings will not be discussed further.

## Civilian vs. Military Groups

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Appendix B, figures 4 and 5 are plots of the  ${}^{8}W_{S}$  and  ${}^{8}BW_{S}$  measures for the total group split into civilian and military groups. These groups have large populations, so their 95% CIs are fairly small. Both groups present similar variability results with the  ${}^{8}W_{S}$  in the 22 to 28% range for civilians and 23 to 25% range for military. The  ${}^{8}BW_{S}$  findings are also similar, with ranges of 41 to 42% and 37 to 44% for the civilian and military groups. Since the civilian group is much less mobile than the military group this would suggest that movement between bases may not be a major source of the variability observed in the USAF HCP. Appendix G presents the shift results for the military and civilian groups.

## Gender Groups

Appendix B, figures 6 and 7 are plots of the  $\%W_S$  and  $\%BW_S$  measures for the total group separated by gender. The female group is considerably smaller than the male group (365 vs. 6207 individuals). In general, the female group has less variability in its mean HTLs ( $\%W_S$  of 18 to 19 % vs. 24 to 27% and  $\%BW_S$  of 34 to 35% vs. 40 to 45%). The 95% CIs for both groups do not overlap. The female group is primarily in the marginal range and the male group overlaps both the marginal and unacceptable range. The shift results for the male and female groups are located in appendix H.

## Ethnic Groups

Appendix B, figures 8 and 9 separates the total group into different ethnic groups. Only three ethnic groups had large enough numbers to be considered, blacks, hispanics and whites. All the groups exhibit very similar variability with the  $\%W_S$  and  $\%BW_S$  measures matching the total group's measures. The  $\%W_S$  measure varied from 24 to 26 % for whites, 21 to 24% for blacks and 20 to 27% for hispanics. The  $\%BW_S$  measure varied

from 39 to 45% for whites, 39 to 41% for blacks and 40 to 41% for hispanics. Appendix I presents the shift results for each ethnic group.

## Mean HTLs vs. Audiometric Test Frequency

Another way of looking at the data analyzed is presented in appendix B, figures 10-25. In figure 10, the mean HTLs are plotted vs. test frequency for the total group for the population's last four tests. This type of plot presents one view of the data. It provides information with respect to the population's hearing characteristics over time by audiometric test frequency. Similarly in figures 11-18, the mean HTLs are plotted vs. test frequency for the population of each individual AFB. In Fig 19-25, the mean HTLs are plotted vs. test frequency for remaining groups (civilian vs. military, gender and ethnic).

## Mean HTLs vs. the Population's Mean Age

In figures 26-41, the same data base is plotted as mean HTLs vs. mean age by audiometric test frequency for the total group and each sub-group. This type of data configuration provides useful information including: the mean time between tests, the average age of the population at each test and possible calibration errors (significant shifting in HTLs between tests at one or more test frequencies).

### Noise Exposure Distributions

The audiometric data obtained from the HCDR exhibited a noise exposure value field. A closer inspection of the values for this noise exposure data found it to be unreliable. Some bases had no information entered and others had the same value for all personnel. Therefore, instead of trying to use this questionable data, noise exposure data were directly collected from databases at each AFB studied. Appendix B, figure 42 presents a cumulative distribution plot of the TWA data for the total group representing all eight AFBs. TWAs were determined by work area. Each work area has at least one eight-hour

TWA and some have as many as sixty-five. Over seven hundred work areas are included in this overall distribution. The median of the total group's cumulative TWA distribution was approximately 85 dBA. The 10th percentile is 77 dBA and 90th percentile is 94 dBA. It is noted that this distribution is based primarily on the estimated TWAs that were determined using the previous 4 dB exchange rate.

Similar plots of the distribution of TWAs for each base are in appendix B, figures 43-50. Charleston, Kelly, Robins and Seymour-Johnson AFBs have medians similar to the total group in the 84-85 dBA range. Pope AFB's median is slightly lower at 82 dBA. The remaining AFBs, Shaw, Langley and Randolph, have higher medians of 87, 88 and 90 dBA respectively.

#### Conclusions and Recommendations

This paper focused on using ADBA to evaluate the HCPs at eight Air Force Bases. The ADBA results for the total data base studied classify the USAF HCP as unacceptable to marginal. Breaking the overall data into individual AFB groups did not reveal a group with significantly different variability from the total group. The exception being that females within data bases exhibit significantly less variability in their HTLs as compared to males.

An overall distribution of TWAs for the total group shows a fairly normal distribution with the 50th percentile at 85 dBA. The 10th percentile is 77 dBA and 90th percentile is 94 dBA for the total population.

The standard deviation of differences ANSI S12.13 measure failed to provide similar results to those found using the %W<sub>S</sub> and %BW<sub>S</sub> measures. Therefore the use of the

standard deviation of difference of HTLs measure is not recommended in attempting to evaluate the effectiveness of HCPs in general.

Since ADBA findings yielded a program classification of unacceptable to marginal, it is recommended that the source or sources of the identified high variability in USAF audiometric data be investigated further.

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#### List of Abbreviations

ADBA - Audiometric Data Base Analysis HCP - Hearing Conservation Program

HTL - Hearing Threshold Level

dBA - A Frequency-Weighted Sound Pressure Level

USAF - United States Air Force

AFB - Air Force Base

HCDR - Hearing Conservation Data Registry
ANSI - American National Standards Institute

OSHA - Occupational Safety and Health Administration

dB - Decibel

Leq, T - Equivalent Continuous A-Weighted Sound Level Over a Time Period T

NIPTS - Noise Induced Permanent Threshold Shifts

%W<sub>S</sub> - Percent Worse Sequential

%BWs - Percent Better or Worse Sequential

S<sub>x</sub> - Standard Deviation of Differences in Hearing Threshold Levels

N - Number of IndividualsCI - Confidence Interval

kHz - Kilohertz

X - Mean Difference Between Sequentially Averaged Hearing Thresholds at

Selected Audiometric Test Frequencies

TWA - Time Weighted Average, dBA

## Appendix A: Tables

<u>Page</u>	<u>Table</u>
A-1	1. Recommended Criterion Ranges for Rating HCP Effectiveness Using
	${ m \%W_S}$ and ${ m \%BW_S}$
A-2	2. Recommended Criterion Ranges for Rating HCP Effectiveness Using
	the Standard Deviation of Differences in HTLs
A-3	3. %W <sub>S</sub> and %BW <sub>S</sub> and 95% Confidence Intervals for Each Group
A-4	4. Standard Deviation of Differences Findings for the Overall Group
A-5	5. Mean HTLs (dB) vs Mean Age and Audiometric Test Frequency for
	Each Group Listed

TABLE 1. Recommended Criterion Ranges for Rating HCP Effectiveness Using %Ws and %BWs

HCP Rating	Sequential comparisons	Sequential comparisons			
	of first four tests	of later tests			
	(1-2,2-3, and 3-4)	(5-6, 6-7, 7-8, etc)			
	%Ws	%Ws	%BWs		
Acceptable	<20	<17	<26		
Marginal	20 to 30	17 to 27	26 to 40		
Unacceptable	>30	>27	>40		

%Ws - Percent Worse sequential

%BW - Percent Better or Worse sequential

TABLE 2. Recommended Criterion Ranges for Rating HCP Effectiveness Using the Standard Deviation of Differences in HTLs

			· · · · · · · · · · · · · · · · · · ·
Test	HCP Rating	Sequential comparisons	Sequential comparisons
Frequency		of first four tests	of later tests
kHz		(1-2,2-3, and 3-4)	(5-6, 6-7, 7-8, etc)
0.5	Acceptable	<6	<5
1	Marginal	6 to 7	5 to 7
or 2	Unacceptable	>7	>7
3	Acceptable	<7	<6
	Marginal	7 to 10	6 to 8
	Unacceptable	>10	>8
		<b>~</b>	
4	Acceptable	<7	<7
	Marginal	7 to 10	7 to 10
	Unacceptable	>10	>10
6	Acceptable	<9	<8
	Marginal	9 to 12	8 to 11.5
	Unacceptable	>12	>11.5

Table 3: %Ws and %BWs and 95% Confidence Intervals for Each Group

	Group	Test	%Ws	+/- CI	%BWs	+/- CI
		1-2	26.5	1.1	43.0	1.2
Total	(n=6655)	2-3	25.0	1.0	41.9	1.2
	,	3-4	23.2	1.0	40.0	1.2
		1-2	26.6	2.8	47.8	3.2
	Charleston	2-3	24.3	2.7	45.3	3.1
	(n=962)	3-4	34.5	3.0	47.9	3.2
	(11 602)	1-2	27.3	1.6	40.3	1.7
	Kelly	2-3	25.8	1.6	40.6	1.7
	(n=3052)	3-4	20.0	1.4	39.4	1.7
	(11-3032)	1-2	20.1	4.1	40.9	5.1
	Langley	2-3	18.4	4.0	35.9	5.0
		2-3 3-4	25.1	4.5	33.9 38.7	5.0
	(n=359)	1-2	26.5	4.5 3.2		3.6
	Dana			5.	45.8	
D	Pope	2-3	22.9	3.0	43.5	3.6
Bases	(n=743)	3-4	16.6	2.7	31.5	3.3
		1-2	32.2	5.4	45.8	5.8
	Randolph	2-3	23.8	4.9	41.3	5.7
	(n=286)	3-4	26.6	5.1	38.1	5.6
		1-2	25.8	3.3	40.6	3.7
<i>;</i>	Robins	2-3	26.7	3.3	40.6	3.7
	(n=689)	3-4	18.3	2.9	34.3	3.5
		1-2	20.0	8.8	41.3	10.8
	Seymour-Johnson	2-3	45.0	10.9	52.5	10.9
	(n=80)	3-4	32.5	10.3	53.8	10.9
		1-2	25.2	3.9	49.9	4.5
	Shaw	2-3	24.7	3.9	45.3	4.4
	(n=481)	3-4	33.5	4.2	48.6	4.5
		1-2	27.1	1.1	43.7	1.2
	Male	2-3	25.4	1.1	42.4	1.2
Sex	(n=6207)	3-4	, 23.5	1.1	40.2	1.2
		1-2	17.8	3.9	34.0	4.9
	Female	2-3	18.9	4.0	34.5	4.9
	(n=365)	3-4	17.8	3.9	34.0	4.9
		1-2	27.9	1.6	41.3	1.8
	Civilian	2-3	26.6	1.6	41.5	1.8
	(n=2859)	3-4	21.5	1.5	41.1	1.8
		1-2	25.4	1.6	43.7	1.8
	Military	2-3	23.7	1.5	41.9	1.8
	(n=3029)	3-4	23.2	1.5	37.4	1.7
		1-2	26.3	1.5	44.9	1.7
	White	2-3	24.5	1.5	42.6	1.7
	(n=3252)	3-4	24.3	1.5	39.1	1.7
		1-2	21.7	3.6	40.1	4.3
Race	Black	2-3	23.9	3.7	40.9	4.3
	(n=506)	3-4	21.1	3.6	39.1	4.3
		1-2	27.0	1.9	39.6	2.1
	Hispanic	2-3	26.4	1.9	40.7	2.1
İ	(n=2038)	3-4	19.7	1.7	39.6	2.1
	(11-2000)	<u> </u>	19.7	1.1	55.5	<u> </u>

Table 4: Standard Deviation of Differences Findings for the Overall Group

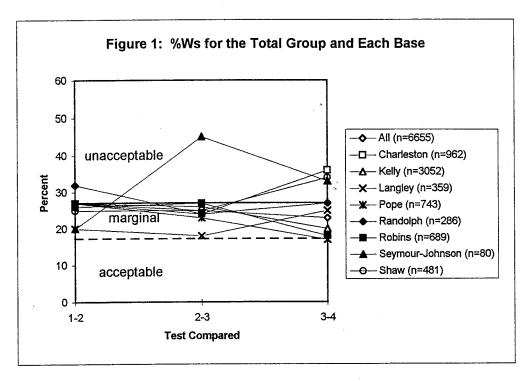
	Standard Deviation of Differences in HTLs						
Overall (n=6655)	Test Frequencies, kHz						
, ,	0.5	1.0	2.0	3.0	4.0	6.0	
tests 1-2	4.4	3.5	3.5	4.4	5.1	7.2	
tests 2-3	4.3	3.5	3.6	4.3	5.0	7.1	
tests 3-4	4.0	3.3	3.5	4.3	4.9	7.1	

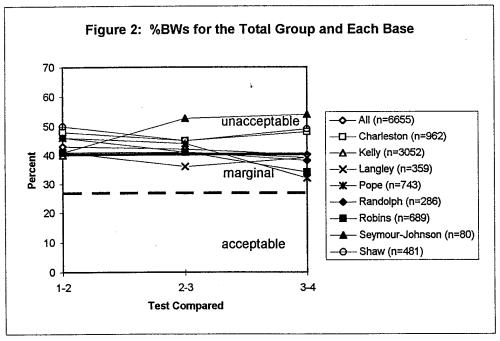
Table 5: Mean HTLs (dB) vs Mean Age and Audiometric Test Frequency for Each Group Listed

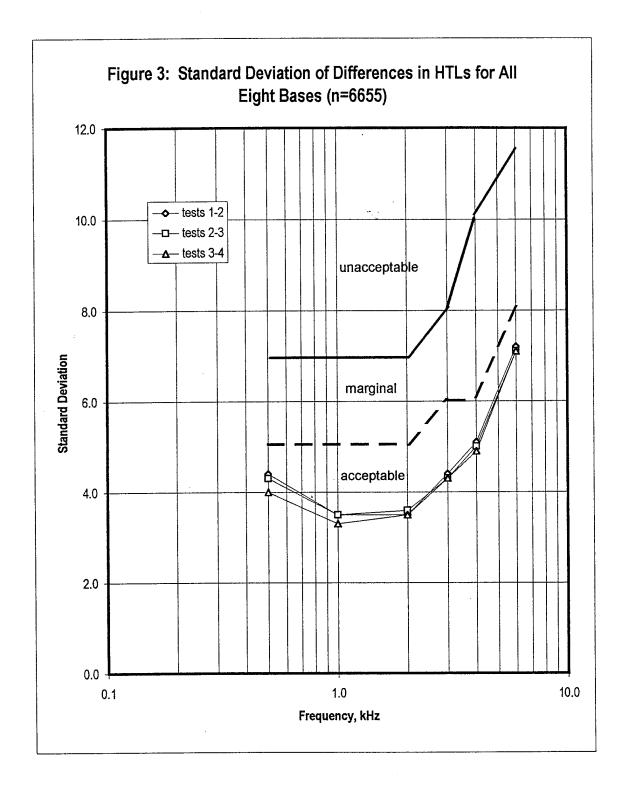
AUL COCC		A	4.0		Dd-l-b (200)		۸	(a)	
All (n=6655)	34.7	Age 35.9	(y) 37.2	38.3	Randolph (n=286)	32.4	Age 33.7	(y) 35	36.7
Frequency	8.31	8.49	8.61	8.24	Frequency 0.5 kHz	6.05	5.77	5.45	6.68
0.5 kHz					1 kHz	4.46	4.83	4.81	5.05
1 kHz	6.65	6.84	7.10	6.64			5.59	5.98	
2 kHz	7.39	7.62	8.04	7.87	2 kHz	4.95			6.11
3 kHz	13.05	13.91	14.65	14.56	3 kHz	8.68	10.06	10.20	11.80
4 kHz	16.78	17.86	18.92	19.04	4 kHz	11.78	13.19	14.19	16.02
6 kHz	21.04	21.72	21.96	22.22	6 kHz	16.08	18.05	18.85	20.12
Charleston (n=962)		Age		ļ	Robins (n=689)		Age		
Frequency	31	32.1	33.5	34.6	Frequency	29.5	31	32.4	33.7
0.5 kHz	6.71	6.57	6.40	6.59	0.5 kHz	6.51	6.82	7.55	6.91
1 kHz	4.95	4.88	5.01	5.46	1 kHz	4.75	5.41	5.61	4.97
2 kHz	5.35	5.37	5.64	6.08	2 kHz	4.90	5.45	5.74	5.41
3 kHz	9.42	9.99	11.27	11.07	3 kHz	8.07	8.88	9.58	9.58
4 kHz	12.31	12.71	13.46	14.15	4 kHz	11.24	12,53	13.50	13.48
6 kHz	18.87	18.34	17.48	20.23	6 kHz	14.35	15.76	16.69	16.61
Kelly (n=3052)	<del>                                     </del>	Age			Shaw (n=481)		Age		
Frequency	38.9	40.2	41.5	42.6	Frequency	35.6	36.5	37.4	38.3
0.5 kHz	10.29	10.85	11.32	10.45	0.5 kHz	6.56	6.20	6.15	6.46
0.5 kHz	8.75	9.07	9.67	8.62	1 kHz	4.92	4.94	5.25	5.49
2 kHz	10.11	10.46	11.05	10.56	2 kHz	5.56	5.44	5.75	5.91
	18.17	19.44	20.07	19.86	2 KHZ 3 KHZ	10.14	10.47	11.64	10.98
3 kHz			25.87	25.63	4 kHz	13.78	14.49	15.30	14.97
4 kHz	22.98	24.57			4 k⊓2 6 kHz	21.20	20.30	19.18	21.99
6 kHz	25.82	27.14	27.92	27.14		21.20			21.99
Langley (n=359)	00.0	Age		200	Seymour-Johnson (n=80)	20.4	Age		44 5
Frequency	28.9	30.4	31.7	32.9	Frequency	38.1	39.2	40.5	41.5
0.5 kHz	8.28	8.01	7.74	7.99	0.5 kHz	4.91	4.31	4.94	5.66
1 kHz	6.07	5.64	5.36	5.22	1 kHz	4.56	3.91	4.03	4.12
2 kHz	5.93	5.90	5.59	5.77	2 kHz	3.91	3.88	4.84	5.34
3 kHz	8.41	8.26	7.91	8.38	3 kHz	9.59	9.03	10.53	10.91
4 kHz	11.41	11.37	11.29	11.83	4 kHz	13.22	13.09	14.78	15.66
6 kHz	14.97	14.58	13.79	13.52	6 kHz	17.62	16.66	21.81	22.88
Pope (n=743)	T	Age	(y)		Hispanic (n=2038)		Age		
Frequency	29.4	30.6	31.8	32.9	Frequency	39.3	40.6	41.8	43.0
0.5 kHz	6.35	6.09	4.90	4.75	0.5 kHz	10.90	11.43	11.99	11.08
1 kHz	4.47	4.39	3.93	3.93	1 kHz	9.33	9.62	10.29	9.18
2 kHz	4.34	4.38	4.77	4.70	2 kHz	10.99	11.34	11.96	11.43
3 kHz	7.55	7.91	8.50	8.70	3 kHz	19.67	20.91	21.54	21.19
4 kHz	9.28	9.60	10.79	11.14	4 kHz	24.31	25.78	27.07	26.71
6 kHz	1	45 70	15.21	14.88	6 kHz	26.51	27.67	28.58	27.66
White (n=3252)	15.56	15.70	10.21						
, FEIRIO (11 OLOL)	15.56	15.70 Age			Black (n=506)		Age		
Frequency	15.56 31.8	Age 33.1	(y) 34.3	35.5	Black (n=506) Frequency	33.4	34.8		37.4
		Age	(y)	35.5 7.04		33.4 7.40	Age 34.8 7.36	(y)	6.79
Frequency	31.8	Age 33.1	(y) 34.3	7.04 5.39	Frequency	7.40 6.23	34.8 7.36 6.37	(y) 36.3 7.45 6.40	6.79 6.03
Frequency 0.5 kHz 1 kHz	31.8 7.24 5.37	Age 33.1 7.33 5.51	7.19 5.62	7.04 5.39	Frequency 0.5 kHz 1 kHz	7.40 6.23	34.8 7.36 6.37	(y) 36.3 7.45 6.40	6.79 6.03
Frequency 0.5 kHz 1 kHz 2 kHz	31.8 7.24 5.37 5.70	Age 33.1 7.33	(y) 34.3 7.19	7.04	Frequency 0.5 kHz	7.40	34.8 7.36	(y) 36.3 7.45	6.79
Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz	31.8 7.24 5.37 5.70 10.21	Age 33.1 7.33 5.51 5.93 10.92	7.19 5.62 6.26	7.04 5.39 6.22 11.86	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz	7.40 6.23 6.55 8.70	34.8 7.36 6.37 6.51 9.03	36.3 7.45 6.40 7.03	6.79 6.03 6.75 9.49
Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz	31.8 7.24 5.37 5.70	Age 33.1 7.33 5.51 5.93	7.19 5.62 6.26 11.75	7.04 5.39 6.22	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz	7.40 6.23 6.55	34.8 7.36 6.37 6.51	7.45 6.40 7.03 9.62	6.79 6.03 6.75
Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz	31.8 7.24 5.37 5.70 10.21 13.68	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46	(y) 34.3 7.19 5.62 6.26 11.75 15.58 19.40	7.04 5.39 6.22 11.86 16.01	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz 6 kHz	7.40 6.23 6.55 8.70 10.55	34.8 7.36 6.37 6.51 9.03 11.46 15.22	7.45 6.40 7.03 9.62 12.15 15.60	6.79 6.03 6.75 9.49 11.93
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)	31.8 7.24 5.37 5.70 10.21 13.68 18.88	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age	7.19 5.62 6.26 11.75 15.58 19.40	7.04 5.39 6.22 11.86 16.01 20.08	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz 6 kHz Military (n=3029)	7.40 6.23 6.55 8.70 10.55 14.96	34.8 7.36 6.37 6.51 9.03 11.46 15.22	7.45 6.40 7.03 9.62 12.15 15.60	6.79 6.03 6.75 9.49 11.93 15.65
Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz 6 kHz Civilian (n=2859) Frequency	31.8 7.24 5.37 5.70 10.21 13.68 18.88	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3	(y) 34.3 7.19 5.62 6.26 11.75 15.58 19.40 e (y) 42.5	7.04 5.39 6.22 11.86 16.01 20.08	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz 6 kHz Military (n=3029) Frequency	7.40 6.23 6.55 8.70 10.55 14.96	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7	7.45 6.40 7.03 9.62 12.15 15.60 9.62	6.79 6.03 6.75 9.49 11.93 15.65
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3	34.3 7.19 5.62 6.26 11.75 15.58 19.40 e (y) 42.5	7.04 5.39 6.22 11.86 16.01 20.08 43.7	Frequency 0.5 kHz 1 kHz 2 kHz 3 kHz 4 kHz 6 kHz Military (n=3029) Frequency 0.5 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44	7.45 6.40 7.03 9.62 12.15 15.60 9.62 15.60	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44	9 (y) 34.3 7.19 5.62 6.26 11.75 15.58 19.40 9 (y) 42.5 11.69 10.10	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74	36.3 7.45 6.40 7.03 9.62 12.15 15.60 \$\(\mathbf{y}\)\) 32.0 6.23 4.70	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87	7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31	7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94	7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94 15.77	7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94 15.77	7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9	34.3 7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94 15.77 Age 36.3	36.3 7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61 2 (y) 37.6	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency  0.5 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28 34.6 8.26	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9 8.45	7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1 8.55	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67 38.3	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Temale (n=365)  Frequency  0.5 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46 35.0 9.23	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94 15.77 Age 36.3 8.94	36.3 7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61 2 (y) 37.6 9.31	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37 8.77
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency  0.5 kHz  1 kHz  1 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28 34.6 8.26 6.65	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9 8.45 6.87	9 (y) 34.3 7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1 8.55 7.13	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67 38.3 8.19 6.68	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Temale (n=365)  Frequency  0.5 kHz  1 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46 35.0 9.23 6.70	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 4.87 8.31 10.94 15.77 Age 36.3 8.94 6.22	36.3 7.45 6.40 7.03 9.62 12.15 15.60 6.23 4.70 5.11 8.96 11.76 15.61 e (y) 37.6 9.31 6.56	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37 8.77 6.15
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency  0.5 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28 34.6 6.65 7.43	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9 8.45 6.87 7.70	34.3 7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1 8.55 7.13 8.12	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67 38.3 8.19 6.68 7.96	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Temale (n=365)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46 35.0 9.23 6.70 6.72	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 8.31 10.94 15.77 Age 36.3 8.94 6.22 6.32	6 (y) 36.3 7.45 6.40 7.03 9.62 12.15 15.60 6 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61 e (y) 37.6 9.31 6.56 6.76	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37 8.77 6.15 6.32
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency  0.5 kHz  1 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28 34.6 8.26 6.65	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9 8.45 6.87	9 (y) 34.3 7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 11.69 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1 8.55 7.13	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67 38.3 8.19 6.68	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Temale (n=365)  Frequency  0.5 kHz  1 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46 35.0 9.23 6.70 6.72 8.11	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 8.31 10.94 15.77 Age 36.3 8.94 6.22 6.32 7.85	36.3 7.45 6.40 7.03 9.62 12.15 15.60 2 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61 2 (y) 37.6 9.31 6.56 6.76 8.46	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37 8.77 6.15
Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Civilian (n=2859)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Male (n=6207)  Frequency  0.5 kHz  1 kHz  2 kHz	31.8 7.24 5.37 5.70 10.21 13.68 18.88 40.0 10.68 9.09 10.71 19.32 24.33 27.28 34.6 6.65 7.43	Age 33.1 7.33 5.51 5.93 10.92 14.55 19.46 Age 41.3 11.22 9.44 11.07 20.52 25.84 28.51 Age 35.9 8.45 6.87 7.70	34.3 7.19 5.62 6.26 11.75 15.58 19.40 2 (y) 42.5 10.10 11.73 21.36 27.25 29.33 2 (y) 37.1 8.55 7.13 8.12	7.04 5.39 6.22 11.86 16.01 20.08 43.7 10.85 9.02 11.25 21.06 26.95 28.67 38.3 8.19 6.68 7.96	Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Military (n=3029)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz  Temale (n=365)  Frequency  0.5 kHz  1 kHz  2 kHz  3 kHz  4 kHz  6 kHz	7.40 6.23 6.55 8.70 10.55 14.96 29.4 6.51 4.70 4.72 7.76 10.26 15.46 35.0 9.23 6.70 6.72	34.8 7.36 6.37 6.51 9.03 11.46 15.22 Age 30.7 6.44 4.74 8.31 10.94 15.77 Age 36.3 8.94 6.22 6.32	6 (y) 36.3 7.45 6.40 7.03 9.62 12.15 15.60 6 (y) 32.0 6.23 4.70 5.11 8.96 11.76 15.61 e (y) 37.6 9.31 6.56 6.76	6.79 6.03 6.75 9.49 11.93 15.65 33.2 6.15 4.67 5.13 9.10 12.23 16.37 8.77 6.15 6.32

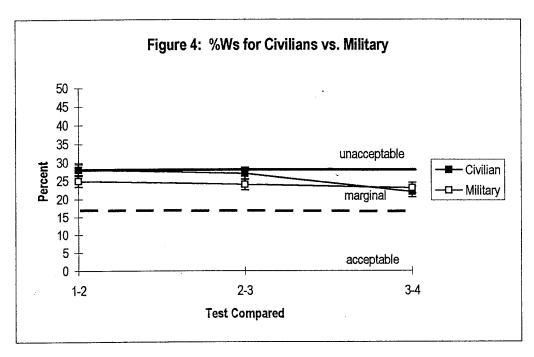
## Appendix B: Figures

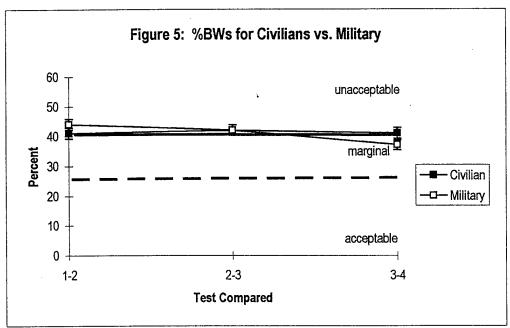
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Page	Figure
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B-1	2. %BWs for the Total Group and Each Base
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B-24	48. Robins AFB - Distribution of Leq's
B-25	49. Seymour-Johnson AFB - Distribution of Leq's
B-26	50. Shaw AFB - Distribution of Leq's

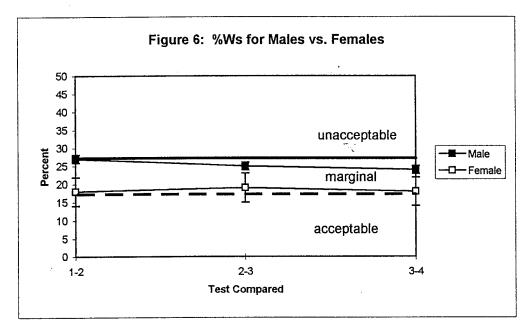


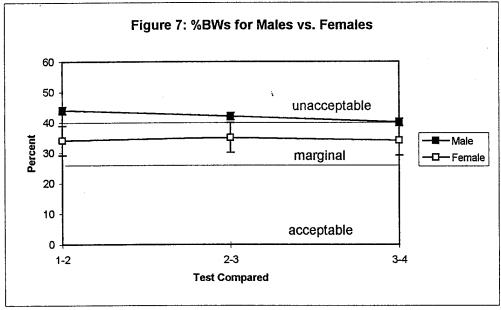


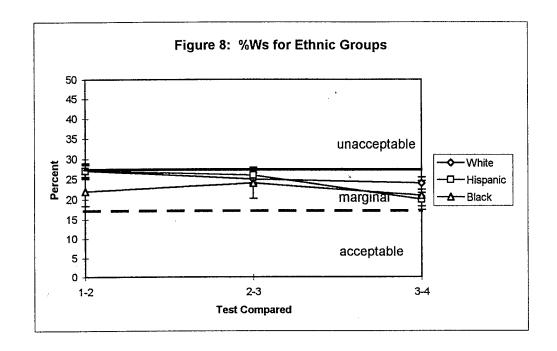


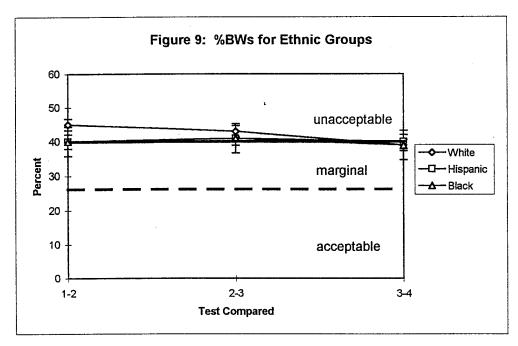


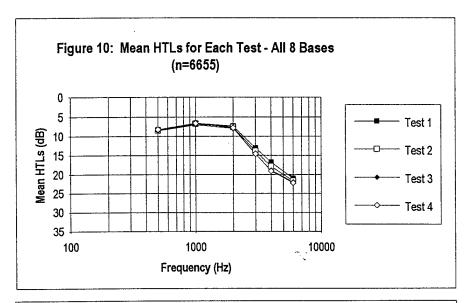


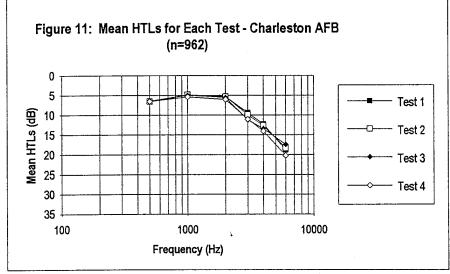


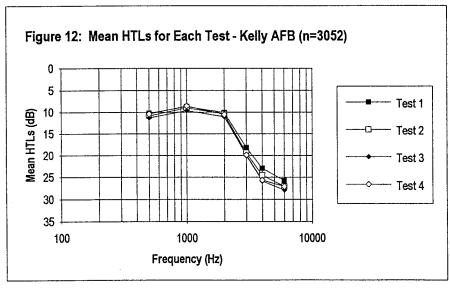


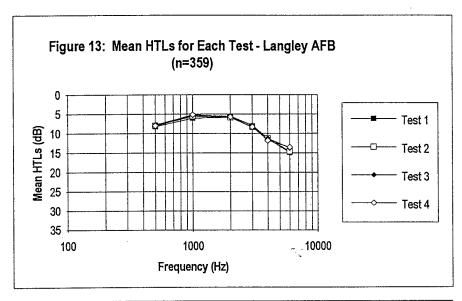


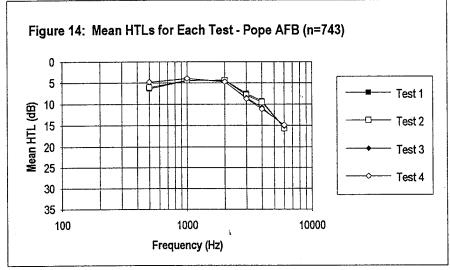


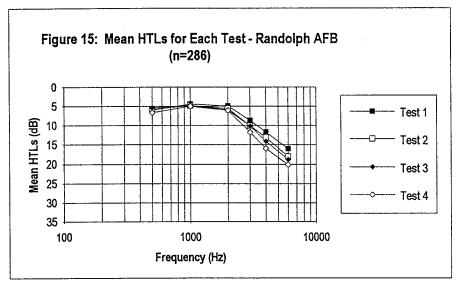


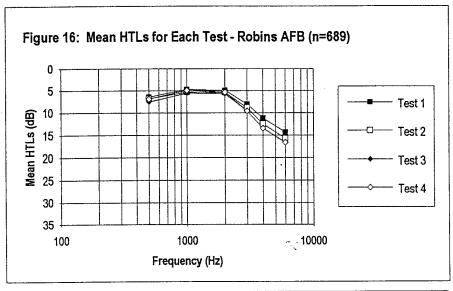


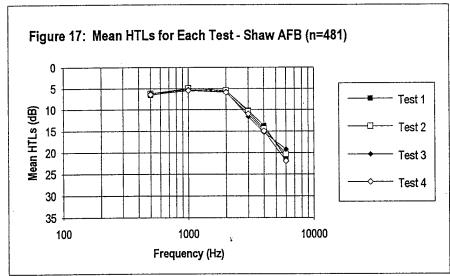


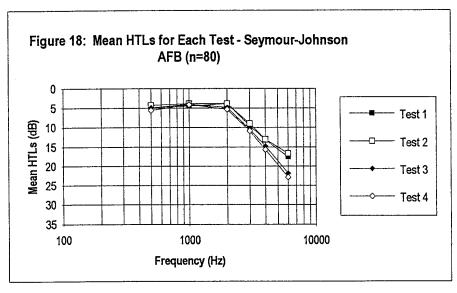


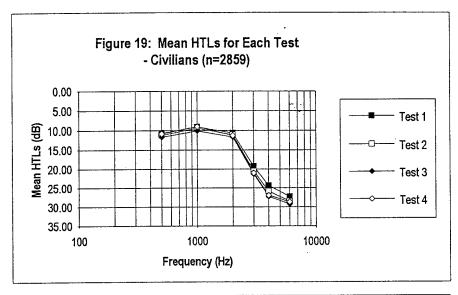


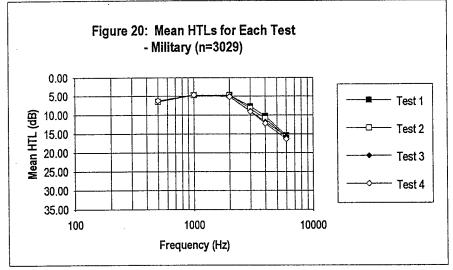


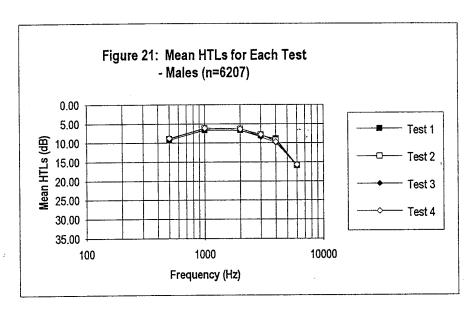


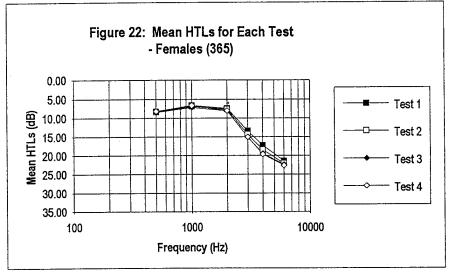


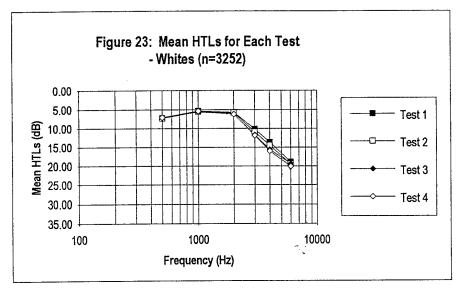


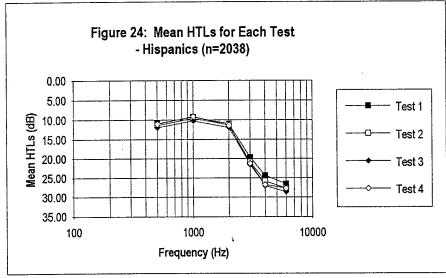


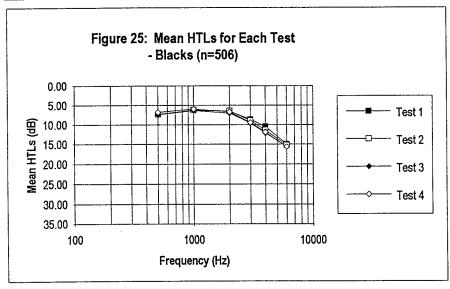


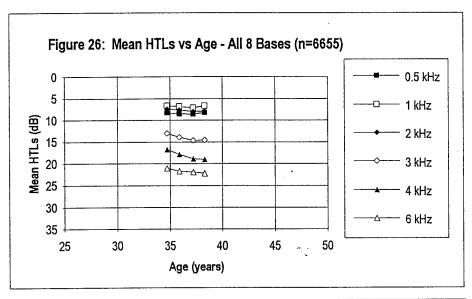


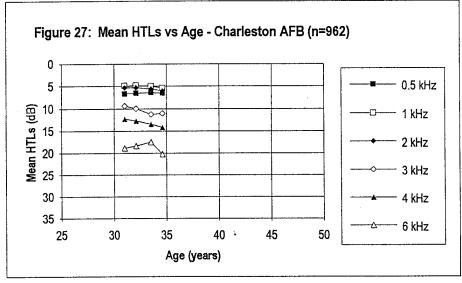


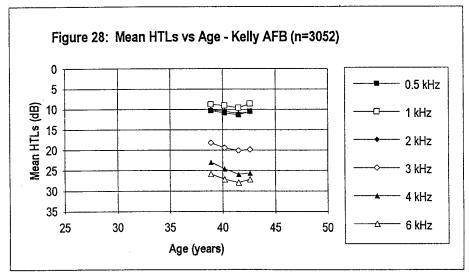


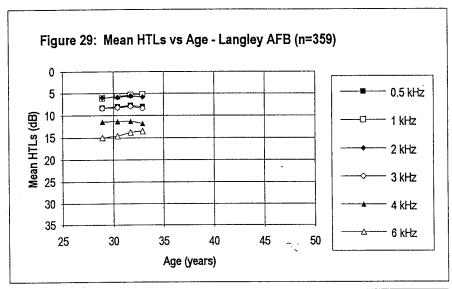


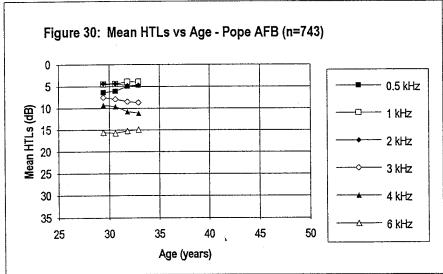


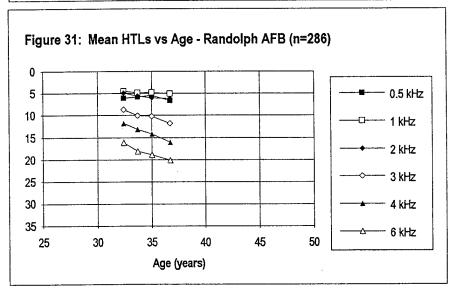


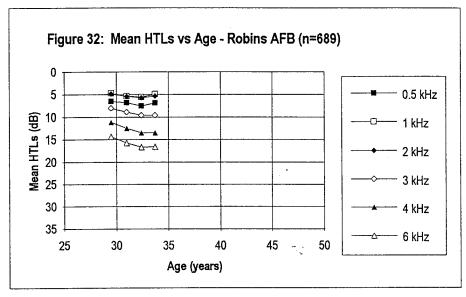


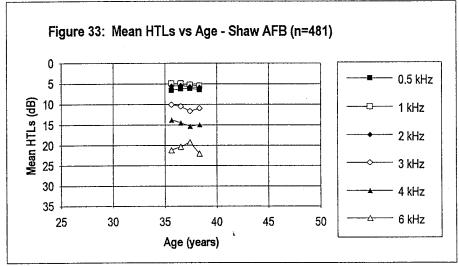


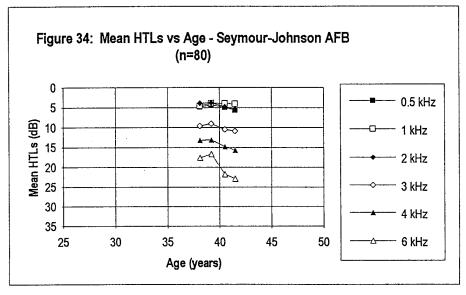


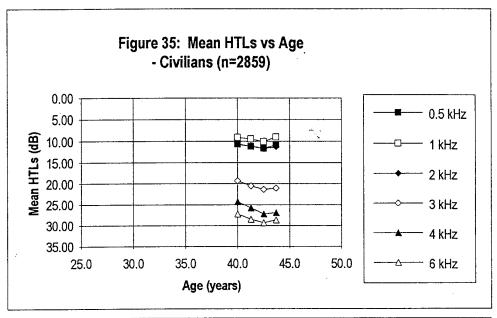


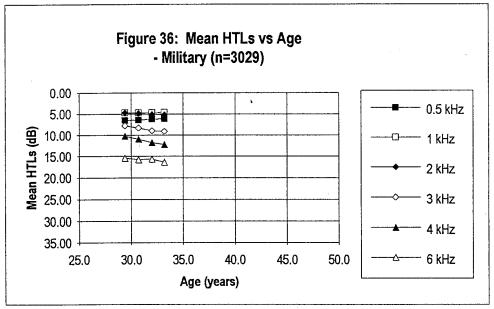


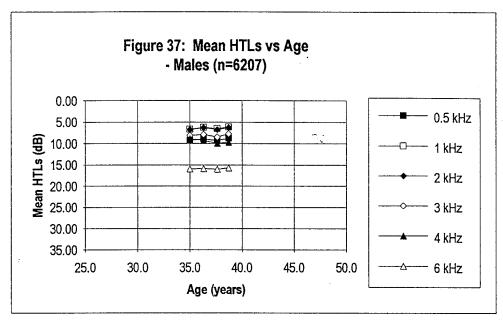


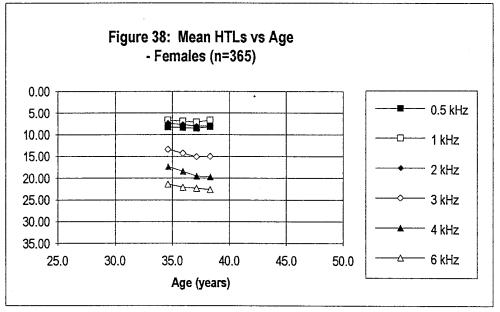


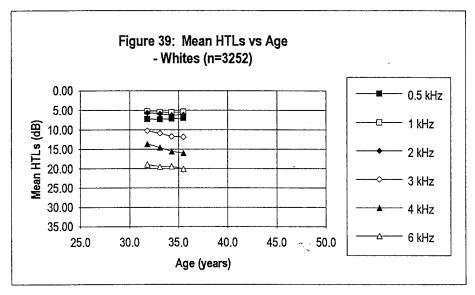


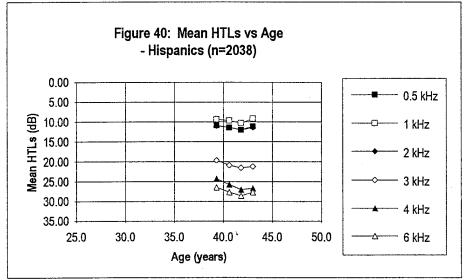


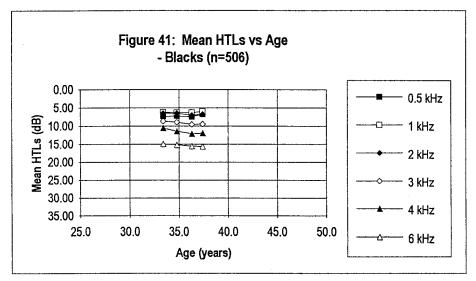


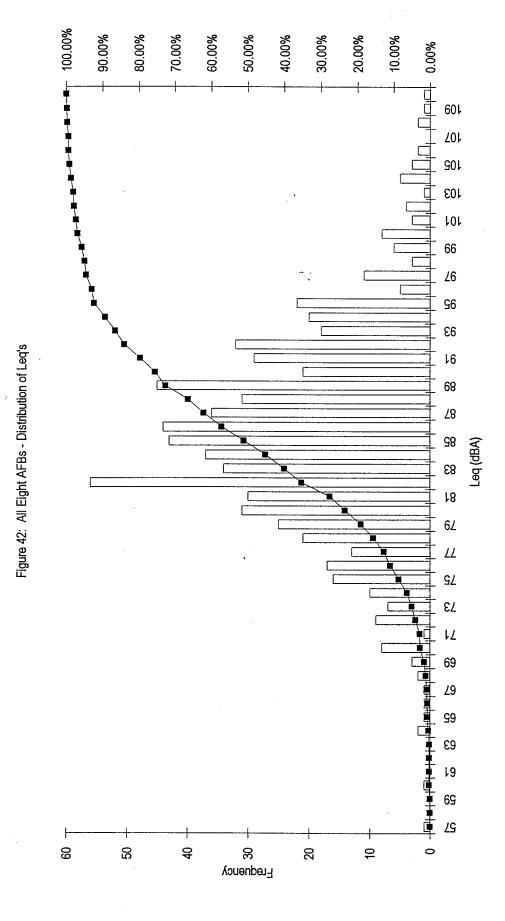






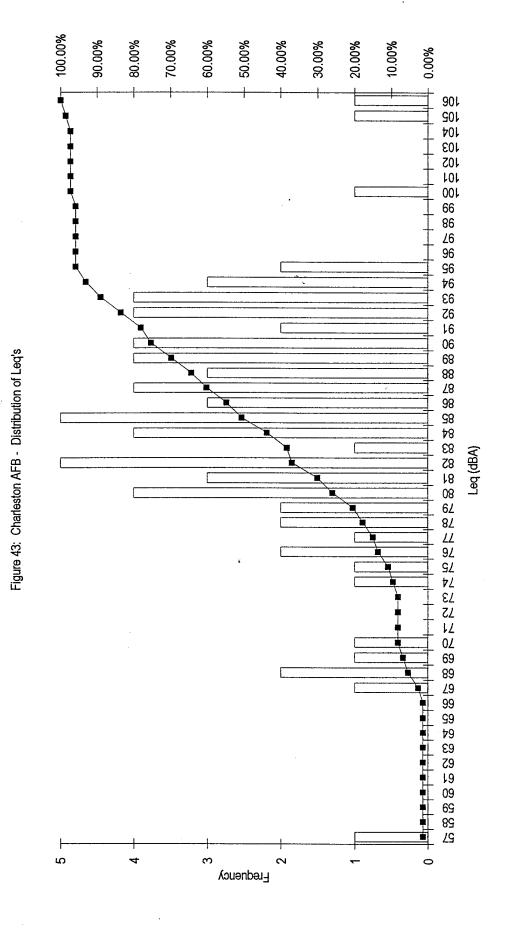




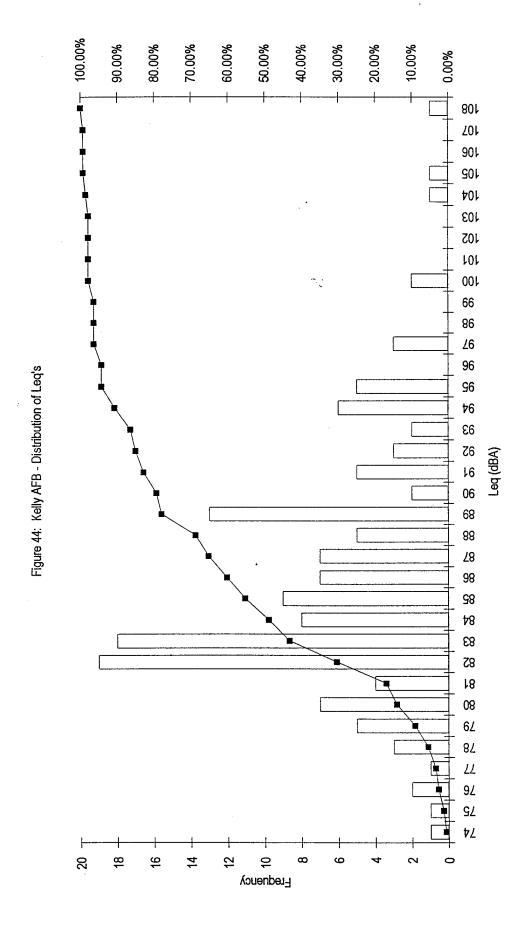


8 AFBs 723 work areas

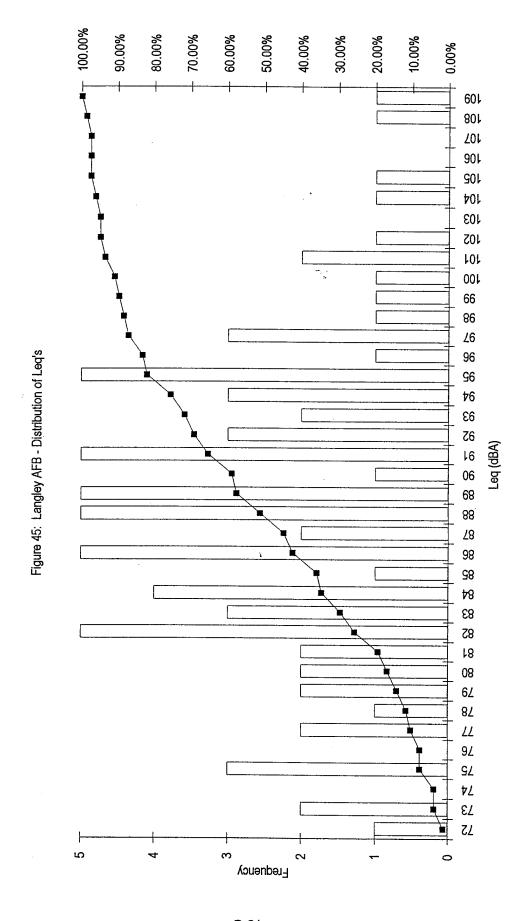




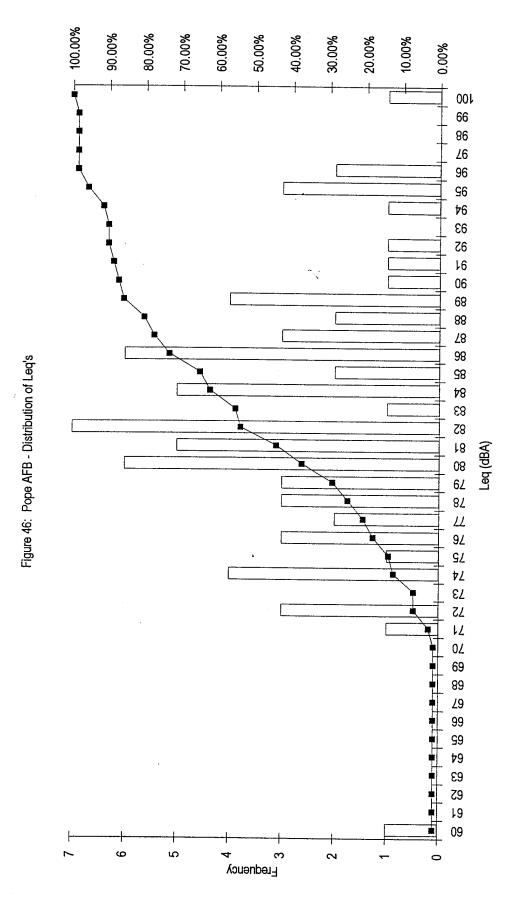




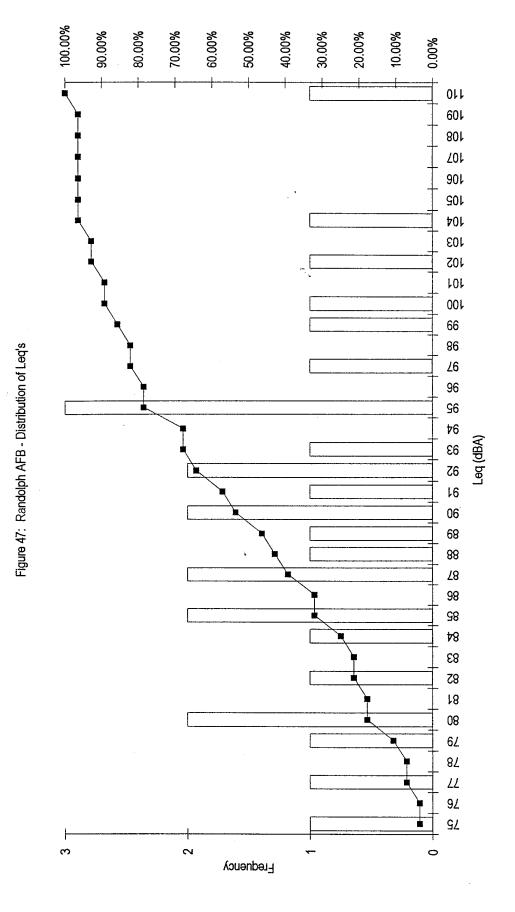


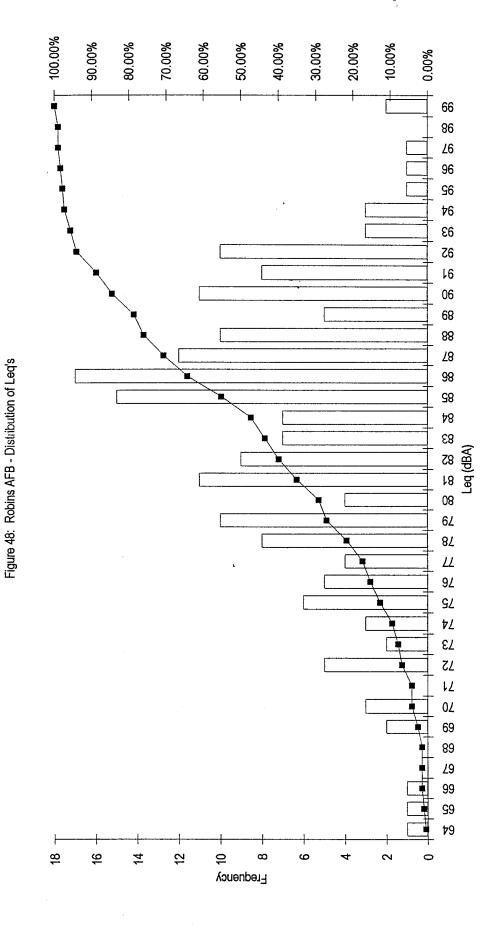






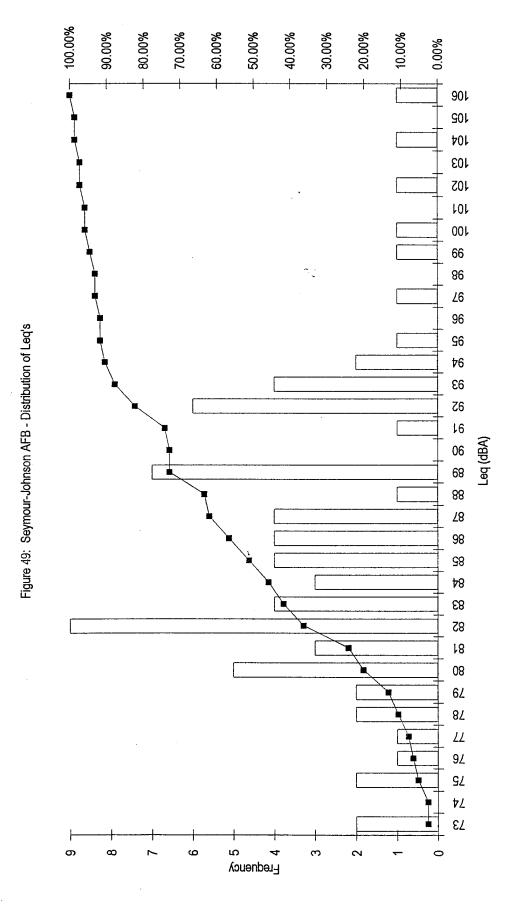




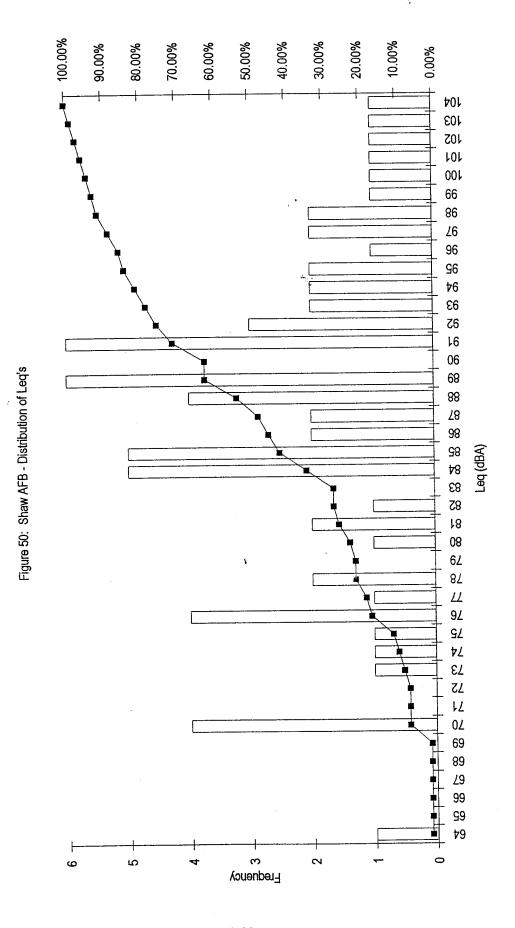


188 work areas 2072 samples









## Appendix C: Group Descriptive Statistics

<u>Tables</u> Page C-1

Group Descriptive Statistics

1		==		
		ALL AFB		
	Test 1		Test 3	
Avg Age (y)	34.7	35.9	37.2	38.3
Avg Service (y)	6.9	8.2	9.4	10.5
ĺ				000
		arleston A		
<u> </u>	Test 1	Test 2	Test 3	
Avg Age (y)	31.0	32.1	33.5	34.6
Avg Service (y)	6.5	7.6	9.0	10.0
		16 11 2 =	D (): C	250)
	- · ·	Kelly AF		
<u> </u>	Test 1	Test 2	Test 3	
Avg Age (y)	38.9	40.2	41.5	42.6
Avg Service (y)	7.2	8.5	9.8	10.9
		angley Al		
	Test 1	Test 2	Test 3	
Avg Age (y)	28.9	30.4	31.7	32.9
Avg Service (y)	5.8	7.3	8.6	9.8
		Pope AF		
	Test 1		Test 3	
Avg Age (y)	29.4	30.6	31.8	32.9
Avg Service (y)	6.0	7.2	8.3	9.4
	Г	White	(N=325	(2)
	Test 1	Test 2	•	Test 4
Avg Age (y)	31.8	33.0	34.3	35.5
Avg Age (y) Avg Service (y)	6.5	7.7	9.0	10.2
LAA GELAICE (A)	1 0.5	1.1	5.0	10.2
		Hispanio	: (N=20)	381
	Test 1	Test 2		Test 4
Avg Age (y)	39.3	40.6	41.8	43.0
1 0 0	7.6	40.6 8.8	10.1	11.2
Avg Service (y)	0.1	0.0	10.1	11.4
	Γ	Militon	/ (N=30	201
	Toot 4	Test 2		Test 4
Aven Ame (v)	Test 1			
Avg Age (y)	29.4	30.7	32.0	33.2
Avg Service (y)	6.2	7.5	8.8	10.0
		94.1	/N - 000	١٦١
	<u> </u>		(N=620	
	Test 1	Test 2		Test 4
Avg Age (y)	34.6	35.9	37.1	38.3
Avg Service (y)	7.0	8.2	9.5	10.6

## Appendix D: First Page Output of CMPALL.EXE Program

Page D-1

Output
First Page Output of CMPALL.EXE Program

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ALL REPORTS TO BE GENERATED ARE FOR EMPLOYEES WITH AT LEAST THE FIRST 4 REPORTS AUDIOGRAMS IN THEIR FILE.

THE FOLLOWING 3 REPORTS ARE TO BE GENERATED:
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N BETWEEN AUDIOGRAMS REPORT GENERATOR ENVIRONMENTAL NOISE CONSULTANTS, INC
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FAX: (919) 781-2396
PC SOFTWARE VERSION BY:
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                                                                LARRY H. ROYSTER
                                                                                               DR. JULIA D. ROYSTER
                                                                                                                            P.O. BOX 30698
                                                                                                                                                                                                                                                                                                               RODNEY THOMAS
          COMPARISON
                                    (C) 1993
DR. LARRY
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NOTE -- ALL TESTS ARE MADE FOR EITHER EAR, NOT COMBINED EARS (IE. CORRESPONDING FREQUENCY LEVELS ARE NOT AVERAGED TOGETHER TO GET A SINGLE NUMBER. THE EARS ARE EXAMINED SEPARATELY.)
NOTE -- MANY PAIRS OF THE CATEGORIES WILL GIVEIDENTICAL RESULTS BECAUSE NO READING WAS MADE AT THE 8K FREQUENCY LEVEL.

## Appendix E: Shift Results for All Eight AFBs

<u>Page</u>	<u>Shift Result</u>
E-1	Test 1-2 Comparison
E-2	Test 2-3 Comparison
E-3	Test 3-4 Comparison

COUNT OF PEOPLE IN THIS GROUP= 6655 TEST 1 TO 2 AAAAAAAAAAAAAA

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2 PAGE

> COUNT OF PEOPLE IN THIS GROUP- 6655 TEST 2 TO 3 AAAAAAAAAAAAA

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COUNT OF PEOPLE IN THIS GROUP= 6655 TEST 3 TO 4 AAAAAAAAAAAA

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15	59	33	53	74	139	276	0	0	99	35	44	90	137	278	0	0	25	5 18	20	31	49	158	0	0
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Ŋ	1233	1082	1183	1294	1330	1191	0	0	1203	1053	1051	1290	1312	1161	0	0	908	5 616	650	862	1067	1137	0	0
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451.0 1676.0 1290.0 1290.0 1534.0 1534.0 6.8 25.2 19.4 19.4 23.1 23.1

## Appendix F: Shift Results for Individual AFB Groups

Page	Shift Result
F-1	Test 1-2 Comparison - Charleston AFB
F-2	Test 2-3 Comparison - Charleston AFB
F-3	Test 3-4 Comparison - Charleston AFB
F-4	Test 1-2 Comparison - Kelly AFB
F-5	Test 2-3 Comparison - Kelly AFB
F-6	Test 3-4 Comparison - Kelly AFB
F-7	Test 1-2 Comparison - Langley AFB
F-8	Test 2-3 Comparison - Langley AFB
F-9	Test 3-4 Comparison - Langley AFB
F-10	Test 1-2 Comparison - Pope AFB
F-11	Test 2-3 Comparison - Pope AFB
F-12	Test 3-4 Comparison - Pope AFB
F-13	Test 1-2 Comparison - Randolph AFB
F-14	Test 2-3 Comparison - Randolph AFB
F-15	Test 3-4 Comparison - Randolph AFB
F-16	Test 1-2 Comparison - Robins AFB
F-17	Test 2-3 Comparison - Robins AFB
F-18	Test 3-4 Comparison - Robins AFB
F-19	Test 1-2 Comparison - Seymour-Johnson AFB
F-20	Test 2-3 Comparison - Seymour-Johnson AFB
F-21	Test 3-4 Comparison - Seymour-Johnson AFB
F-22	Test 1-2 Comparison - Shaw AFB
F-23	Test 2-3 Comparison - Shaw AFB
F-24	Test 3-4 Comparison - Shaw AFB

TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 962

KRTS	aaaa	0	0	0	0	0	0	0	0	962	0	0	0	0	0	0	0	0
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1 KRTE	VAXAA	0	0	0	0	0	0	0	0	962	0	0	0	0	0	0	0	0
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500 1000	* *	0	0	0	0	m	5	42	165	538	158	36	10	H	ю	7	0	0
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0009	äääää	S	0	6	7	20	46	115	161	212	181	86	48	34	6	9	4	7
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	15	94.0	106.0 106.0 11.0 11.0	193.0 20.1
	14	157.0 16.3	165.0	299.0 31.1
	13	157.0	165.0 17.2	299.0 31.1
	12	129.0	140.0 165.0 165.0 14.6 17.2 17.2	255.0 26.5
	11	129.0	41.0 169.0 140.0 4.3 17.6 14.6	26.5 26.5
∝.	10	171.0	169.0 17.6	312.0 2 32.4
	6	43.0	41.0	84.0 8.7
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	7	126.0 13.1	133.0 13.8	245.0 25.5
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	2	256.0 573.0 126.0 26.6 59.6 13.1	255.0 547.0 133.0 26.5 56.9 13.8	460.0 827.0 245.0 47.8 86.0 25.5
	-	256.0 26.6		
		WORSE PERCENT	BETTER PERCENT	SITHER PERCENT

8

DATE= 941107

COUNT OF PEOPLE IN THIS GROUP= 962 TEST 2 TO 3 AAAAAAAAAAAA

0.0 0.0 0.0 0.0 7.9 0.6 -0.7 105.0 10.9 88.0 9.1 5.0 15 88.0 0.501 10.9 6.0 4.1 138.0 274.0 157.0 3.3 14 16.3 0.2 3.6 0.1 138.0 274.0 28.5 13 16.3 157.0 4.3 -0.1 121.0 12.6 131.0 13.6 12 0.0 0.0 121.0 12.6 131.0 13.6 Ξ 0.0 0.0 154.0 16.0 165.0 17.2 292.0 10 1.2 - 0.76.9 10.1 NUMBER 52.0 5.4 25.0 76.0 5.6 -0.3 -0.0 0.0 1.1 CATEGORY 234.0 24.3 253.0 26.3 436.0 45.3 5.7 4.8 4.6 119.0 12.4 13.4 231.0 24.0 129.0 555.0 814.0 84.6 57.0 548.0 0.0 0.0 24.3 26.3 436.0 234.0 253.0 0.0 0.2 -0.9 0.0 234.0 253.0 26.3 436.0 7.9 10.9 231.0 119.0 12.4 129.0 13.4 6.4 1.4 57.7 57.0 814.0 555.0 548.0 0.5 5.3 234.0 253.0 26.3 436.0 0.3 5.5 6.5 EITHER PERCENT PERCENT PERCENT BETTER WORSE

19.0 183.0

183.0 19.0

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TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 962 AXARARARAAAAAAA

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COMBINED EAR 3000 4000 6	aaaaa	0	H	0	0	1	ഹ	35	121	608	157	24	7	H	2	0	0	0
2000	ааааа	0	0	0	0	7	7	15	113	742	68	Ø	5	0		0	~	0
1000	ААААА	0	0	0	0	2	т	16	117	741	12	9	Э	٦	7	0	0	0
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1KRT	аааа	0	0	0	0	0	0	0	0	962	0	0	0	0	0	0	0	0
RIGHT EAR 3000 4000 6000 8000 1KRTS	* * *	0	0	0	0	0	0	0	0	396	0	0	0	0	0	0	0	0
ج 6000	ORSE	13	4	4	12	45	67	142	176	253	118	11	24	11	7	4	7	m
RIGHT EAR 000 4000	SOT WC	7	-	0	4	11	16	100	178	404	164	54	13	89	4	-	~	1
RIG 3000	SING (	7	-	-	0	5	21	75	167	446	166	55	9	12	m	0	0	0
2000	HEAF	0	7	1		ю	æ	56	162	572	124	25	2	٦	m	-	-	7
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6000	aaaaa	m	S	12	16	35	09	159	170	228	125	85	33	16	2	2	2	e
EAR 4000	aaaaa	4	Н	m	9	5	20	107	187	360	159	81	19	4	2	2	-	7
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EITHER PERCENT

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527.0 54.8

204.0

204.0 21.2

105.0 10.9

527.0 54.8

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BETTER PERCENT

COUNT OF PEOPLE IN THIS GROUP= 3052 TEST 1 TO 2 AAAAAAAAAAAAA

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43         55         36         65         96         165         96         165         96         165         96         165         96         165         96         165         96         165         96         165 <t< td=""><td>18 27 67 88 156 151 156 239 335 391 689 610 758 739 625 1368 1472 1241 1103 829 667 641 558 533 549 112 110 124 136 245 27 19 25 41 91 2 4 4 10 36 2 2 2 3 19 0 0 0 0 0</td><td>C</td><td>10</td><td>9</td><td></td><td>26</td><td>26</td><td></td><td></td><td>0</td><td></td><td>12</td><td>Q</td><td>89</td><td>20</td><td>39</td><td>56</td><td>0</td><td>0</td><td></td><td>₹#</td><td>ا · · ا سم</td><td></td><td></td><td></td><td></td><td>0</td></t<>	18 27 67 88 156 151 156 239 335 391 689 610 758 739 625 1368 1472 1241 1103 829 667 641 558 533 549 112 110 124 136 245 27 19 25 41 91 2 4 4 10 36 2 2 2 3 19 0 0 0 0 0	C	10	9		26	26			0		12	Q	89	20	39	56	0	0		₹#	ا · · ا سم					0
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579 607 582 510 482 568 0 0 0 3 65 667 641 558 533 549 0 0 0 3 627 641 558 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 649 673 673 673 673 673 673 673 673 673 673	667 641 558 533 549 112 110 124 136 245 27 19 25 41 91 2 4 4 10 36 2 2 2 3 19 1 0 1 3 2 0 0 0 0 0 0 0 0 **** HEARING GOT BETTER	0 1					1096	794	3052	3052	12					103			052	, 183			7	~			3052
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180.0 5.9

180.0

277.0 9.1

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300.0

76.0

16.2

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494.0 1360.0 16.2 44.6

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BETTER PERCENT

PERCENT

438,0

438.0

697.0 4 22.8

697.0 22.8

553.0 18.1

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521.0 1229.0 1229.0 2585.0 17.1 40.3 40.3 84.7

1229.0 2585.0 40.3 84.7

EITHER

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TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP= 3052 AAAAAAAAAAAAAA

COMBINED EAR 3000 4000 6000 8000 1KRTS	началайблабаланаладалалаванананананананана	4 0 0	1 0 0	1 0 0	10 0 0	23 0 0	65 0 0	260 0 0	0 0 609	319 3052 3052	521 0 0	181 0 0	36 0 0	11 0 0	3 0 0	1 0 0	5 0 0	2 0 0
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500	Anaaaa	0	•			, ,	18	3 78	594	1843	419	, 76		2	0	m	0	0
1KRTS	<b>፟</b>	0	0	0	0	0	0	0	0	3052	0	0	0	0	0	0	0	0
RIGHT EAR 3000 4000 6000 8000 1KRTS	*** A	0	0	0	0	0	0	0	0	3052 3	0	0	0	0	0	0	0	0
R 6000	WORSE ***	10	т	89	27	7.0	152	397	611	196	513	293	112	33	12	89	m	4
RICHT EAR 000 4000	GOT W	4	0	89	7	33	69	329	749	1085	520	179	38	19	9	2	ю	7
	HEARING GOT	3	0 1	2 0	4 11	5 14	4 60	2 225	4 695	7 1326	6 514	1 153	4 34	6 9	2 4	7	0 1	0 0
o 200	A HE	Э	ı	7	3 1	11	22 34	192	15 704	459 1447	1 516	98 101	20 24	7	2	7	0	1
500 1000 2000	AAAAAAAAAA	2		4	m	8	32 2	207 137	779 735	1224 145	597 551	148 9	32 2		2	7	0	m
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-	ааааа	0	0	0	0	0	0	0	0	3052 3052	0	0	0	0	0	0	0	0
000 80	ААААА	a	2	80	21	51	150	342	593	788 30	999	312	131	45	18	S	н	7
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LEFT EAR 3000 4000	namaa.	Ω	п	-	9	17	46.	224	722	1243 ]	593	148	24	14	4	7	Н	н
2000	aaaaab	2	0		m	7	24	153	693	1479	540	117	20	4	m	2	-	ო
1000	AAAAA	7		m	0	10	13	148	795	1426	540	89	16	5	2	2	0	0
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DB	AA	40	35	30	25	20	15	10	u,	J	1	-10	-15	-20	-25	-30	-35	-40

0.0 0.0 0.0 0.0 9.9 0.7 5.0 0.6 1.1 3.8 4.5 0.4 0.5 4.3 3.7 0.4 0.0 0.0 0.0 0.0 9.3 0.8 0.8 1.2 1.1 5.6 6.1 7.1 0.6 0.5 6.0 5.2 0.0 0.0 0.0 0.0 9.3 0.4 0.6 1.4 0.4 7.4 5.4 6.2 5.1 0.4 0.7 0.9 × ß

186.0 6.1 403.0 403.0 13.2 234.0 689.0 22.6 419.0 313.0 14 689.0 22.6 313.0 348.0 419.0 11.4 13.7 548.0 230.0 12 348.0 548.0 230.0 11 787.0 168.0 479.0 25.8 5.5 15.7 766.0 25.1 345.0 11.3 10 CATEGORY NUMBER 102.0 261.0 8.6 578.0 18.9 520.0 1240.0 17.0 40.6 326.0 219.0 787.0 788.0 1963.0 25.8 25.8 64.3 578.0 1539.0 18.9 50.4 520.0 1240.0 1241.0 2631.0 17.0 40.6 40.7 86.2 S 578.0 18.9 788.0 1963.0 326.0 25.8 64.3 10.7 219.0 7.2 EITHER 1241.0 2631.0 PERCENT 40.7 86.2 578.0 1539.0 18.9 50.4 BETTER PERCENT PERCENT WORSE

DATE- 941106

COUNT OF PEOPLE IN THIS GROUP= 3052 TEST 3 TO 4 AAAAAAAAAAAA

0.0 0.0 0.0 6.7 -0.6 -0.7 -0.3 -0.3 -0.2 -0.7 4.8 4.3 3.6 4.1 3.5 0.0 0.0 0.0 0.0 9.6 -0.9 -1.1 -0.6 -0.3 -0.2 -1.0 7.2 NUMBER 5.5 6.2 CATEGORY 5.2 5.8 0.0 0.0 0.0 0.0 6.8 9.1 -0.8 -1.0 -0.4 -0.3 -0.3 -0.6 6.1 5.0 5.8 4.8 × ഗ

6.9 386.0 16 189.0 6.2 212.0 12.6 212.0 189.0 6.2 386.0 12.6 333.0 10.9 375.0 12.3 658.0 21.6 658.0 21.6 333.0 10.9 375.0 12.3 13 536.0 17.6 272.0 8.9 298.0 272.0 298.0 536.0 17.6 372.0 724.0 23.7 12.2 10 410.0 13.4 3.4 102.0 104.0 201.0 9.9 611.0 20.0 707.0 521.0 1202.0 17.1 39.4 263.0 291.0 611.0 1520.0 20.0 49.8 708.0 1892.0 23.2 62.0 1202.0 1203.0 2597.0 85.1 707.0 20.0 611.0 521.0 17.1 291.0 9.5 8.6 263.0 2597.0 85.1 1892.0 62.0 49.8 611.0 1520.0 1203.0 2 39.4 708.0 20.0 EITHER PERCENT PERCENT PERCENT BETTER WORSE

TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP... 359

			0	000 4000		9000	500 1000 2000 3000 4000 6000 8000 1	1KRTS		500 1000		2000	3000 4000 6000 8000 1KRTS	000 4000	0009	8000	1 KRTS		500 1000		2000 30	3000 4	3000 4000 6000	000	8000 1KRTS	משמא
DB 50	20	JUD 40	2			,																	;	,	1	
aaaaa	AAA	аалаалалаламамаламарараааманарамама	AAAA	аааа	aaaa	<b>'</b> ለአአአ	ааааа		AAAU	ааааааааа	* *		HEARING GOT	OT WO	WORSE ****	*** N	aaaa	KÂA.	<i>нанананананананананананананананананана</i>	aaaaa	\#\#\#\	YXXXX	ааааа	ааааа	ነጻສສສ	aaaa
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15	m	2	⊣	2	Q	12	0	0		7	0	2	4	٦ ,	12	0	0		4	0	0	0	1	9	0	0
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5 7	72	89	68	67.	16	83	0	0		69	74	<i>L</i> 9	11	65	89	0	0	, , ,	55	38	48	51	. 64	61	0	0
0 142		173 1	192	152	125	80	359	359		146	176	181	143	146	95	359	359		212	261 2	261 2	236	202	154	359	359
-5 7	74	68	65	74	73	71	0	0		80	19	68	91	89	16	0	0		99	50	46	52	61	74	0	0
-10 2	59	12	15	21	22	47	0	0		26	14	17	27	35	29	0	0		11	7	7	6	10	22	0	0
-15 1	10	m	e	9	8	16	0	0		S	9	0	7	89	14	0	0		7	0	0	1	m	10	0	0
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MORSE 72.0 187.0 29.0 72.0 187.0 29.0 72.0 187.0 29.0 72.0 16.0 42.0 31.0 31.0 38.0 38.0 26.0 26.0 PERCENT 20.1 52.1 8.1 20.1 52.1 8.1 20.1 52.1 8.1 20.1 52.1 8.1 20.1 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 27.0 33.0 86.0 27.0 33.0 86.0 27.0 27.0 37.0 27.0 27.0 27.0 27.0 27.0 27.0 27.0 2				
12.0 187.0 29.0 72.0 72.0 187.0 29.0 72.0 16.0 42.0 31.0 31.0 38.0 24.0 57.7 9.2 24.0 57.7 9.2 24.0 57.7 9.2 24.0 62.0 147.0 306.0 62.0 147.0 306.0 62.0 17.3 40.9 85.2 17.	16			58.0 16.2
12.0 187.0 29.0 72.0 72.0 187.0 29.0 72.0 16.0 42.0 31.0 31.0 38.0 24.0 57.7 9.2 24.0 57.7 9.2 24.0 57.7 9.2 24.0 62.0 147.0 306.0 62.0 147.0 306.0 62.0 17.3 40.9 85.2 17.		26.0	33.0 9.2	
12.0 187.0 29.0 72.0 72.0 187.0 29.0 72.0 16.0 42.0 31.0 31.0 20.1 52.1 8.1 20.1 52.1 8.1 20.1 52.1 8.1 20.1 4.5 11.7 8.6 86.0 207.0 33.0 86.0 86.0 207.0 33.0 86.0 62.0 147.0 306.0 62.0 147.0 306.0 62.0 147.0 306.0 62.0 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 19.2 19.2 19.2	14	38.0 10.6	50.0 13.9	87.0
1         2         3         4         5         6         7         8         9         10         11           72.0         187.0         29.0         72.0         187.0         29.0         72.0         16.0         42.0         31.0         33.0           86.0         207.0         33.0         86.0         86.0         207.0         33.0         86.0         17.0         56.0         38.0         38.0           24.0         57.7         9.2         24.0         47.0         57.7         9.2         24.0         47.0         10.6         10.6         10           147.0         306.0         62.0         147.0         306.0         62.0         147.0         33.0         95.0         69.0         69           40.9         85.2         17.3         40.9         95.2         26.5         19.2         19.2         19	13	38.0 10.6	50.0 13.9	87.0
1         2         3         4         5         6         7         8         9         10         11           72.0         187.0         29.0         72.0         187.0         29.0         72.0         16.0         42.0         31.0           20.1         52.1         8.1         20.1         52.1         8.1         20.1         4.5         11.7         8.6           86.0         207.0         33.0         86.0         24.0         57.7         9.2         24.0         47.7         15.6         10.6           147.0         306.0         62.0         147.0         147.0         33.0         95.0         69.0           40.9         85.2         17.3         40.9         95.2         26.5         19.2	12	31.0	38.0 10.6	69.0
12.0 187.0 29.0 72.0 72.0 187.0 29.0 72.0 16.0 42.0 20.1 52.1 8.1 20.1 52.1 8.1, 20.1 52.1 8.1, 20.1 52.1 8.1, 20.1 52.1 8.1, 20.1 4.5 11.7 86.0 207.0 33.0 86.0 86.0 207.0 33.0 86.0 17.0 55.0 24.0 24.0 57.7 9.2 24.0 24.0 57.7 9.2 24.0 34.0 57.7 9.2 24.0 40.9 85.2 17.3 40.9 85.2 17.3 40.9 85.2 17.3 26.5	11	31.0	38.0 10.6	69.0 19.2
1         2         3         4         5         6           72.0         187.0         29.0         72.0         72.0         187.0           20.1         52.1         8.1         20.1         20.1         52.1           86.0         207.0         33.0         86.0         207.0           24.0         57.7         9.2         24.0         57.7           147.0         306.0         62.0         147.0         147.0         306.0           40.9         85.2         17.3         40.9         40.9         85.2		42.0	56.0 15.6	95.0 26.5
1         2         3         4         5         6           72.0         187.0         29.0         72.0         72.0         187.0           20.1         52.1         8.1         20.1         20.1         52.1           86.0         207.0         33.0         86.0         86.0         207.0           24.0         57.7         9.2         24.0         24.0         57.7           147.0         306.0         62.0         147.0         147.0         306.0           40.9         85.2         17.3         40.9         40.9         85.2	6	16.0	17.0	33.0 9.2
1         2         3         4         5         6           72.0         187.0         29.0         72.0         72.0         187.0           20.1         52.1         8.1         20.1         20.1         52.1           86.0         207.0         33.0         86.0         24.0         57.7           147.0         306.0         62.0         147.0         147.0         306.0           40.9         85.2         17.3         40.9         40.9         85.2	ATEGORI 8	72.0	86.0	147.0
1 2 3 4 72.0 187.0 29.0 72.0 20.1 52.1 8.1 20.1 86.0 207.0 33.0 86.0 24.0 57.7 9.2 24.0 147.0 306.0 62.0 147.0 1 40.9 85.2 17.3 40.9	7	29.0		62.0
1 2 3 4 72.0 187.0 29.0 72.0 20.1 52.1 8.1 20.1 86.0 207.0 33.0 86.0 24.0 57.7 9.2 24.0 147.0 306.0 62.0 147.0 1 40.9 85.2 17.3 40.9	9	187.0 52.1	207.0 57.7	306.0 85.2
1 2 3 72.0 187.0 29.0 20.1 52.1 8.1 86.0 207.0 33.0 24.0 57.7 9.2 147.0 306.0 62.0 40.9 85.2 17.3	S			147.0
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Ħ	ю	29.0 8.1	33.0 9.2	62.0
Ħ	2	187.0 52.1	207.0	306.0 85.2
	1	72.0	86.0	147.0
		WORSE PERCENT	BETTER PERCENT	

DATE= 941106

TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP- 359 AAAAAAAAAAAAAAA

0.0 0.0 0.0 0.0 4.1 3.2 3.0 3.9 4.9 6.7 -0.3--0.1 -0.2 -0.2 -0.0 -0.5 0.0 6.4 8.8 0.0 0.0 0.0 0.2 -0.8 5.7 4.6 4.5 5.1 -0.5 -0.4 -0.1 -0.3 0.0 0.0 0.0 0.0 9.5 -0.1 -0.1 -0.5 -0.4 -0.4 -0.8 7.3 9.9 4.6 6.4 4.7

23.0 31.0 6.4 9.8 51.0 31.0 51.0 23.0 6.4 37.0 10.3 42.0 71.0 14 37.0 42.0 71.0 13 28.0 32.0 56.0 15.6 28.0 7.8 32.0 8.9 56.0 15.6 11 14.2 12.0 83.0 10 43.0 CATEGORY NUMBER 6.0 23.0 6.4 66.0 18.4 88.0 24.5 129.0 35.9 27.0 29.0 52.0 14.5 297.0 82.7 50.4 57.4 181.0 206.0 66.0 129.0 35.9 18.4 88.0 129.0 35.9 18.4 88.0 24.5 0.99 27.0 52.0 14.5 29.0 297.0 82.7 50.4 206.0 57.4 181.0 0.99 18.4 88.0 129.0 35.9 EITHER PERCENT PERCENT PERCENT BETTER WORSE

TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 359 AAAAAAAAAAAAA

500 1	000 2	000	LEFT 3000	EAR 4000	0009	8000 1	LKRTS	500	1000	2000		HT EA 4000	R 6000	8000	1KRTS		000	)00 20	CON 00 3C	BINE	D EAR 000 60	8 000	000	KRTS
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82	11	75	81	96	64	0	0	84				09	67	0	0	, , ,	61	38	42	53	65	49	0	0
143	179	176	144	116	103	359	359	149		-	۲,		118		359								359	359
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aaaaa	чааа	AAAAA	ነጻጸጸ	чаааа	ааааа	ааааа	MAMAMA	VAAMAA		* HEA	RING		ETTER		AAAAA	aaaae	AAAA	ኒጳጳጳጳጳ	aaaaa	AAAA	(AAAA	iaaaa	WAXX	aaaa
	500 1 0 0 0 0 2 2 4 4 4 4 7 9 1 1 3 3 3 0 0	500 1000 2 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	500 1000 2000 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	LEFT	Tef	1.00   1.00   1.00   4.00   4.00   6.00	The first continuous	DB 500 1000 2000 4000 6000 8000 1KRTS  AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	The tens   The tens	KRTS  AAAAAAAA  0 3  0 3  0 3  0 3  359 3  44444444444444444444444444444444444	10000 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1000 2000 **** HEAR 0 0 0 0 0 0 1 0 9 12 50 71 199 192 86 71 1 0 1 0 0 0 0 0	1000 2000 **** HEAR 0 0 0 0 0 0 1 0 9 12 50 71 199 192 86 71 1 0 1 0 0 0 0 0	1000 2000 **** HEAR 0 0 0 0 0 0 1 0 9 12 50 71 199 192 86 71 1 0 1 0 0 0 0 0	Not   Not	Not   Not	Note   Note	Note   Note	Note   Note	Note   Note	Note   Note	Note   Note	Note   Note	Note   Composition   National Properties   National Properties

0.0 0.0 0.0 0.0 0.4 -0.3 5.7 30.0 24.0 3.9 4.5 30.0 24.0 52.0 14.5 0.5 0.2 3.0 48.0 13.4 32.0 74.0 14 0.0 3.8 3.1 32.0 8.9 74.0 13.4 0.2 36.0 26.0 7.2 58.0 16.2 0.0 0.0 0.0 36.0 10.026.0 58.0 16.2 0.0 53.0 34.0 80.0 22.3 0.2 -0.4 0:1 0.3 -0.1 -0.7 10 8.2 CATEGORY NUMBER 6.5 18.0  $\frac{11.0}{3.1}$ 29.0 8.1 5.6 4.5 4.5 5.9 90.0 65.0 139.0 55.0 15.3 35.0 24.0 183.0 51.0 178.0 49.6 282.0 78.6 0.0 0.0 0.0 0.0 90.0 25.1 65.0 18.1 139.0 90.0 139.0 65.0 9.3 0.2 7.5 1.2 55.0 15.3 35.0 24.0 6.7 0.7 6.3 183.0 51.0 178.0 49.6 282.0 78.6 4.9 0.3 90.0 139.0 65.0 18.1 5.7 4.7 0.1 0.3 BETTER PERCENT WORSE PERCENT EITHER PERCENT

DATE = 941107

COUNT OF PEOPLE IN THIS GROUP= 743

0.0 0.0 0.0 0.0 8.3 0.1 4.6 0.2 3.8 0.3 3.3 0.0 3.2 -0.2 -0.0 4.8 0.0 0.0 0.0 0.0 6.3 10.4 0.5 0.3 5.3 0.4 4.8 4.5 0.2 0.1 9.9 -0.2 0.0 0.0 0.0 0.0 7.2 11.2 0.3 -0.2 0.3 6.2 5.2 -0.1 5.0 -0.3 -0.2 6.9

76.0 80.0 10.8 148.0 76.0 148.0 80.0 10.8 223.0 118.0 122.0 16.4 14 118.0 15.9 122.0 223.0 16.4 13 183.0 24.6 92.0 12.4 0.86 13.2 183.0 24.6 92.0 12.4 98.0 11 127.0 128.0 17.2 235.0 10 17.1 CATEGORY NUMBER 63.0 33.0 4 . 4 30.0 4.0 197.0 26.5 189.0 25.4 340.0 45.8 89.0 12.0 177.0 23.8 95.0 12.8 412.0 418.0 56.3 633.0 85.2 197.0 26.5 340.0 45.8 189.0 25.4 197.0 26.5 189.0 340.0 45.8 25.4 95.0. 89.0 177.0 23.8 412.0 55.5 633.0 85.2 418.0 56.3 197.0 26.5 340.0 45.8 189.0 25.4 EITHER PERCENT PERCENT PERCENT BETTER WORSE

DATE= 941107

RIGHT FAR COUNT OF PEOPLE IN THIS GROUP= 743 TEST 2 TO 3 AAAAAAAAAAAAA

LEFT EAR 500 1000 2000 3000 4000 6000 8000 1KRTS 500 1000 2000	1KRTS	1KRTS	1KRTS	1 KRTS	1KRTS	1KRTS		500 100	0 100		0 200	ж 30 30	KIGHT EAR 000 4000	EAR 100 60	900 80	RIGHT EAR 3000 4000 6000 8000 1KRTS	RTS	200	1000	2000	COMBINED EAR 500 1000 2000 3000 4000 6	ED EA	R 6000 1	.R 6000 8000 1KRTS	IKRTS	
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306 427 433 339 285 181 743 743 3	433 339 285 181 743	339 285 181 743	285 181 743	181 743	743		743		336	6 423		451 3	381 3	324	197	143 7	743 3	460	556	572	503	470	323	743	743	
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-0.9 -0.3 0.2 0.4 0.8 -0.4 0.0 0.0 S 6.6 4.7 4.8 6.0 7.3 9.9 0.0 0.0 5.7 4.7 4.6 4.9 6.1 9.6 0.0 0.0 4.6 3.2 3.3 3.6 4.7 7.1 0.0 0.0 -1.2 -0.4 0.3 0.5 1.0 -0.7 0.0 0.0 -1.1 -0.5 0.5 0.7 1.3 -0.3 0.0 0.0

9	0	47.0	6.3		10.6	126.0	17.0
			6.3	79.0	10.6	126.0	17.0
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, (1			10.4	113.0	15.2	188.0	25.3
			8.5	86.0	11.6	148.0	
-			8.5		11.6	148.0	19.9
84	0	88.0	11.8		15.7		26.9
NUMBER	n	31.0	4.2		2.4	49.0	9.9
CATEGORY	0	0.0	2.9	180.0	7.5	323.0	3.5
CAT		11	73	18(	24	323	4,
CAT			7.8 22.9	83.0 180	11.2 24	140.0 323	18.8 43
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,	o n	170.0 401.0	22.9 54.0	180.0 384.0 83.0	24.2 51.7 11.2	140.0	80.2 18.8
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DATE= 941107

3

DB	500 1	500 1000 2000	000	LEFT EAR 3000 4000	EAR 4000	LEFT EAR 3000 4000 6000 8000 1	8000	1KRTS	500	500 1000	2000	RIGH 3000	RIGHT EAR 3000 4000 6000		8000 1KRTS	LKRTS	500	1000	COMBINED EAR 1000 2000 3000 4000 6000	COMBIN 3000	COMBINED EAR 3000 4000 6		8000 1KRTS	1KRTS
AAAA	<u> Иналаданалалананиналанананаланана</u>	AAAAA	aaaa	MAAAA	aaaaa	AAAAA	aaaa	ананаранана	aaaaa	* * * *	HEARING		GOT WOR	WORSE **	¥**	LAAAAA	**** далададададалалалалалаладададададалалалалала	AAAAA	AAAAA	KAAAA	IAAAAA	AAAAA	ааааа	aaaaa
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25	0	0	0	0	0	8	0	0	1	0	0	1	0	4	0	0		0	0	0	0	8	0	0
20	т	7	-	2	m	14	0	0	0	2	2	0	8	16	0	0	0	0	0	0	٦	5	0	0
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-35	0	0	0	-	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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32.0 44.0 5.9 32.0 44.0 5.9 72.0 74.0 130.0 130.0 74.0 104.0 55.0 7.4 138.0 104.0 18.6 14.0 55.0 73.0 77.0 CATEGORY NUMBER
8 9 36.0 4.8  $\frac{21.0}{2.8}$ 15.0 2.0 123.0 16.6 136.0 234.0 52.0 102.0 55.0 568.0 76.4 364.0 375.0 50.5 234.0 123.0 16.6 136.0 18.3 234.0 136.0 18.3 123.0 52.0 7.0 55.0 7.4 102.0 568.0 364.0 49.0 375.0 50.5 123.0 16.6 234.0 136.0 18.3 EITHER PERCENT WORSE PERCENT BETTER PERCENT

DATE= 941107

TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 286 RAKAKAKAKAKAKA

0.0 0.0 0.0 0.0 9.9 1.84.9 4.8 1.0 9.0 3.4 3.3 0.3 3.9 -0.3 0.0 0.0 0.0 0.0 9.6 1.4 7.0 1.3 0.9 1.2 4.8 0.8 5.0 0.3 5.7 -0.1 0.0 0.0 0.0 0.0 5.6 9.5 7.4 1.4 7.0 1.3 5.2 0.5 0.5 5.7 4.7 -0.5 ഗ

	16	26.0	9.1	21.0	7.3	46.0	16.1
	12	26.0	9.1	21.0	7.3	46.0	16.1
	14	51.0	17.8	33.0	11.5	82.0	28.7
	13	51.0	17.8	33.0	11.5	82.0	28.7
	12	42.0	14.7		8.0	63.0	22.0
	11	42.0	14.7	23.0	8.0	63.0	22.0
~	10	55.0	19.2	35.0	12.2	88.0	30.8
NUMBER	თ		8.0	8.0	2.8	31.0	10.8
CATEGORY	8	95.0	2.2	45.0	5.7	131.0	8.9
8						131	4,
CA		39.0	13.6	22.0 4		59.0	20.6
CA		174.0 39.0	60.8 13.6	126.0 22.0	44.1 7.7		20.6
CAY		174.0 39.0	13.6	45.0 126.0 22.0	15.7. 44.1 7.7	240.0 59.0	83.9 20.6
¥5,	2 9	92.0 174.0 39.0	60.8 13.6	126.0 22.0	15.7. 44.1 7.7	131.0 131.0 240.0 59.0	45.8 45.8 83.9 20.6
CA	5 6 7	39.0 92.0 92.0 174.0 39.0	13.6 32.2 32.2 60.8 13.6	22.0 45.0 45.0 126.0 22.0	7.7 15.7 15.7 44.1 7.7	59.0 131.0 131.0 240.0 59.0	20.6 45.8 45.8 83.9 20.6
CA	5 6 7	39.0 92.0 92.0 174.0 39.0	13.6 32.2 32.2 60.8 13.6	22.0 45.0 45.0 126.0 22.0	7.7 15.7 15.7 44.1 7.7	59.0 131.0 131.0 240.0 59.0	20.6 45.8 45.8 83.9 20.6
CAY	5 6 7	39.0 92.0 92.0 174.0 39.0	13.6 32.2 32.2 60.8 13.6	45.0 126.0 22.0 45.0 45.0 126.0 22.0	15.7 15.7 44.1 7.7	131.0 131.0 240.0 59.0	45.8 83.9 20.6 45.8 45.8 83.9 20.6

TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP= 286 AAAAAAAAAAAAAAAAA

0.0 0.0 0.0 0.0 7.4 0.7 20.0 5.6 0.8 20.0 5.4 0.2 4.8 0.2 3.0 0.0 13 3.7 -0.2 0.0 0.0 11 0.0 0.0 10 7.3 10.0 0.4 1.2 NUMBER 4.8 6.6 0.0-0.0 CATEGORY 4.9 4.3 -0.0 -0.2 170.0 0.0 0.0 0.0 0.0 68.0 7.6 10.1 0.5 1.3 0.3 7.2 170.0 5.8 0.5 68.0 5.6 4.8 0.1 9.0-WORSE × S

41.0 22.0 7.7 22.0 7.7 41.0 7.0 38.0 13.3 36.0 12.6 71.0 71.0 38.0 13.3 36.0 12.6 58.0 35.0 27.0 9.4 35.0 12.227.0 58.0 20.3 9.4 41.0 80.0 28.0 45.0 15.7 20.0 12.0 4.2 29.0 68.0 118.0 41.3 64.0 22.4 34.0 25.0 57.0 237.0 82.9 59.4 47.2 135.0 118.0 68.0 23.8 64.0 22.4 64.0 22.4 23.8 41.3 118.0 57.0 34.0 25.0 237.0 59.4 135.0 118.0 23.8 64.0 22.4 EITHER PERCENT PERCENT PERCENT BETTER

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COUNT OF PEOPLE IN THIS GROUP- 286 TEST 3 TO 4

DB       500 1000 2000 3000 4000 6000 8000 1         АААААААААААААААААААААААААААААААААААА	00 300 300 44444 444444	00 4000 AAAAAAAA 2 6 0 0 1 1 1 2 1 2 3 4 5 4 5 4 5 23 23	) 6000 AAAAAAAA 5 1 5 1 1 2 1 2 2 0 2 0 2 0 1 8 1 11 1 11 3 39 5 55	8000 118	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		~	2000 300C HEARING 1 1	000 400 NG GOT	3000 4000 6000 8000 1KRTS ING GOT WORSE **** AAAAAA.	300 8000 SE ****	300 1K	1KRTS 500 1000 2000 3000 4000 6000 8000 1KRTS AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	500	500 1000	2000	8000	0000	3000 4000 6000 8000 IKKIS	DOO IF	CKTS
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33.0 14.0 33.0 14.0 44.0 51.0 17.8 22.0 7.7 69.0 24.1 51.0 22.0 7.7 69.0 24.1 49.0 20.0 65.0 49.0 17.1 20.0 65.0 22.7 57.0 19.9 23.0 76.0 10 26.0 9.0 34.0 76.0 42.0 14.7 109.0 38.1 8 47.0 19.0 6.6 62.0 134.0 46.9 237.0 76.0 182.0 26.6 63.6 9 42.0 109.0 38.1 109.0 38.1 76.0 26.6 42.0 14.7 62.0 21.7 47.0 19.0 6.6 182.0 134.0 46.9 237.0 76.0 26.6 109.0 38.1 42.0 BETTER PERCENT EITHER PERCENT PERCENT WORSE

TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 689

0.0 0.0 0.0 0.0 7.3 1.2 16 74.0 10.7 5.6 1.1 74.0 10.7 5.1 0.7 3.5 0.4 14 111.0 16.1 3.7 0.5 13 111.0 16.1 4.6 0.2 98.0 12 0.0 0.0 98.0 14.2 Ξ 0.0 0.0 10 18.1 9.9 125.0 1.2 7.5 NUMBER 0.7 1.0 1.3 44.0 6.4 6.8 CATEGORY 178.0 25.8 5.3 8.0 4.7 96.0 13.9 6.2 0.2 408.0 59.2 0.0 0.0 25.8 178.0 0.0 0.0 178.0 25.8 9.8 1.4 7.7 0.96 1.2 13.9 0.6 7.2 59.2 408.0 0.4 5.2 178.0 25.8 9.0 5.5 0.4 6.3 PERCENT WORSE S

46.0

46.0

17.0

77.0

57.0 8.3

57.0 8.3

90.0

33.0

133.0

53.0

325.0 47.2

133.0 19.3

133.0

53.0

325.U 47.2

133.0

BETTER PERCENT

6.7

116.0 16.8

116.0 16.8

177.0 25.7

177.0 25.7

147.0

147.0

202.0

76.0

280.0 40.6

142.0

574.0 83.3

280.0

280.0 40.6

142.0

574.0 83.3

280.0 40.6

PERCENT

EITHER

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PAGE

COUNT OF PEOPLE IN THIS GROUP- 689

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S	169	147	156	154	154	135	0		177	155	130	161	117	136	0	0		122 1	100 101		127 1	139 1	135	0	0
0	272	331	343	273	227	187	689	, 689	278	317	367	310	237	200	689	689	. n n	418 4	469 48	486 42	426 3	380 3	302 68	9 689	689
G	134	147	124	144	147	116	0	0	120	143	123	118	120	106	0	0		93	93	5 91	91 1	102 1	101	0	0
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-20	0	7	2	2	m	13	0	0	, m	0	0	Э	ß	7	0	0	4 4	7	0	0	0	0	2	0	0
-25	0	7	0	0	7	m	0	0	<del></del> 1	0	-	0	0	5	0	0		0	0	0	0	2	щ	0	0
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45.0

45.0

66.0 9.6

9.6

52.0

52.0 7.5

74.0

18.0 2.6

117.0 17.0

50.0

316.0 45.9

117.0

117.0 17.0

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316.0 45.9

117.0 17.0

BETTER PERCENT

113.0

113.0

166.0 24.1

166.0 24.1

131.0 19.0

131.0 19.0

186.0 27.0

51.0

280.0

126.0 18.3

582.0 84.5

280.0

280.0

126.0 18.3

582.0

280.0

EITHER PERCENT

PAGE 3

COUNT OF PEOPLE IN THIS GROUP= 689 TEST 3 TO 4 AAAAAAAAAAAA

COMBINED EAR 2000 3000 4000 6000 8000 1KRTS	**** AMAKANAGANAKANAKAKAKAKAKAKAKAKAKAKAKAKAK	0 0	0 0	0 0	0 0	0	0 0	0 0	0 0	689 68	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
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2000 3	aaaaa	1	0	0	0	0	0	4	61	529	81	12	1	0	0	0	0	0
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RIGHT EAR 000 4000		7	0	0	4	ß	13	41	151	241	148	62	15	9	2	0	0	0
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	15	34.0	2. <del>2</del>	49.0		81.0	
	14	65.0	4.		10.4	132.0	19.2
	13	65.0	9.4	72.0	10.4	132.0	19.2
	12	56.0		54.0	7.8	108.0	15.7
	11	56.0		54.0	7.8	108.0	15.7
γ.	10	72.0		17.0	11.2	144.0	20.9
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CAT		336.0	48.8	369.0 53.0	7.7	236.0 552.0 106.0	34.3 80.1 15.4
CAT	9		48.8	125.0 369.0 53.0	53.6 7.7	552.0 106.0	34.3 80.1 15.4
CAT	5	55.0 126.0 126.0 336.0	8.0 18.3 18.3 48.8	53.0 125.0 125.0 369.0 53.0	7.7 18.1 18.1 53.6 7.7	106.0 236.0 236.0 552.0 106.0	15.4 34.3 34.3 80.1 15.4
CAT	5	55.0 126.0 126.0 336.0	8.0 18.3 18.3 48.8	369.0 53.0 125.0 125.0 369.0 53.0	53.6 7.7 18.1 18.1 53.6 7.7	552.0 106.0 236.0 236.0 552.0 106.0	80.1 15.4 34.3 34.3 80.1 15.4
CAT	3 4 5 6	55.0 126.0 126.0 336.0	18.3 48.8 8.0 18.3 18.3 48.8	125.0 369.0 53.0 125.0 125.0 369.0 53.0	7.7 18.1 18.1 53.6 7.7	236.0 552.0 106.0 236.0 236.0 552.0 106.0	15.4 34.3 34.3 80.1 15.4

COUNT OF PEOPLE IN THIS GROUP= 80 TEST 1 TO 2 AAAAAAAAAAAA

AAAA	AAAAAAAAAAAAA	4444	-	Tron and ar	o K								TO La	PICHT PAP							SMO	COMBINED FAR	FAR			
08	500 1	500 1000 2000	)000 3(	3000 4000 6000 8000	000 6	8 000		1KRTS		500	500 1000	2000	3000	3000 4000 6000	3 0009	8000 1KKTS	KKTS	ũ	500 1000	00 200	2000 3000 4000 6000 8000 1KRTS	00 400	00 600	00 800	0 1KF	\TS
AAAA	ааааааааааааааааааааааааааааааааааааааа	AAAAA	(AAAA	WAAAU	<sup>ዚ</sup> ጸ.ጳ.ጳ.ጳ	AAAA	\#\#\#\	LAKAK	A.A.A.	ሺ <mark>አ</mark> ጸአች	* *	HEARING	ING G	GOT WOI	WORSE **	**** 718	ኒጝጸጸጸ	ÂAAA	anama?	VAAAN	<u> </u>	aaaaa	VAAAAV	LARAA	aaaa)	(AA
40	0	0	0	0	-	0	0	0		0	0	0	0	0	0	0	0	4 m m	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	, ,	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0		0	0	0	0	П	Т	0	0		0	0	0	0	-	0	0	0
20	٦	0	0	0	0	7	0	0		0	0	0	-	0	2	0	0		0	0	0	0	0	0	0	0
15	0	н	гH	0	m	e	0	0		1	0	0	2	М	S	0	0		7	0	0	0	0	e	0	0
10	വ	-	4	2	4	ω	0	0		e	Ω	m	9	Ν	7	0	0	en en	1	0	7	2	4	5	0	0
ß	13	16	17	19	12	15	0	0		15	11	13	Q	21	17	0	0		1.1	σ	9	9	ω	13	0	0
0	41	43	41	35	33	23	80	80		33	40	46	36	28	20	80	80		50	95	62	53	51	37 8	80	80
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-20	0	0	0	~	0	4	0	0		7	0	0	-	0	Н	0	0	e e	0	0	0	0	0		0	0
-25	0	0	0	0	0	7	0	0		0	0	0	0	0	1	0	0	n n	0,	0	0	0	0	-4	0	0
-30	0	0	0	0	0	0	0	0		0	0	0	0	0	2	0	0		0	0	0	0	0	0	0	0
-35	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
-40	0	0	0	0	0	0	0	0		0	0	٥	0	0	0	0	0	on o	0	0	0	0	.0	0	0	0
AAAA	, , , , , , , , , , , , , , , , , , , ,	aaaaa	ሂጸጸጸ	<b>'</b> አልጿጲ	aaaaa	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<b>SARAN</b>	ኄቚቚቚ	ÅÅÄ	aaaaa	* *		HEARING GOT		BETTER ****	****	44444	VAAAA	4,4,4,4,4,4	TAMAN	<u> адараадарарарарарарарарарарарарарарарар</u>	aaaaa	YAAAA	LAAAAA	aaaa	1A.A

0.0 0.0 0.0 5.0 7.4 0.0 -0.2 -0.6 -0.2 -0.4 0.0 -0.8 5.0 10.0 14.0 5.0 10.0 14.0 17.5 2.7 3.8  $\frac{9.0}{11.2}$ 15.0 18.8 22.0 27.5 4.0 3.2 22.0  $9.0 \\ 11.2$ 15.0 18.8 8.0 12.0 15.0 19.0 23.8 -1.1 -0.8 -0.6 -0.5 -0.1 -0.1 0.0 0.06.0 5.1 4.9 6.6 7.2 10.3 0.0 0.0 8.0 10.0 12.0 15.019.0  $\frac{17}{21.2}$ 26.0 11.0 13.8CATEGORY NUMBER 5.0 5.0 9.0 16.0 20.0 21.0 26.2 33.0 41.2 7.0 9.0 15.0 18.8 37.0 46.2 45.0 56.2 59.0 73.8 -0.1 -0.5 0.5 -0.6 -0.1 -1.9 0.0 0.0 5.5 5.1 4.6 5.2 7.6 8.9 0.0 0.0 16.0 20.0 21.0 26.2 33.0 16.0 20.0 21.0 33.0 9.0 7.0 15.0 18.8 45.0 59.0 37.0 46.2 21.0 33.0 16.0 BETTER PERCENT EITHER PERCENT WORSE PERCENT

TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP- 80 ARABABABABABA

KRTS	LANA	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
000	AAAA	0	0	0	0	0	0	0	0	80	0	0	0	0	0	Ö	0	0
3 000	AAAA	0	0	-	-	4	5	15	18	24	9	S	0	0	ч	0	0	0
9 000	цаяай	0	0	0	-	0	0	7	17	47	2	ო	0	0	0	0	0	0
3000 4000 6	VÄÄÄÄ	0	0	J	0	0	0	2	17	51	6	0	0	0	0	0	0	0
300	VANAA	0	0	0	0	-	7	ю	9	56	10	0	0	0	0	0	0	0
000	MAAAA	0	0	0	0	0	Т	1	10	55	13	0	0	0	0	0	0	0
500 1000 2000 3000 4000 6000 8000 1KRTS	HEARING GOT WORSE **** AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	0	0	0	0	0	0	ĸ	11	57	89	٦	0	0	0	0	0	0 0 0 0 0 0 0 . 0 0
	AAA.			a a		m m	en en			a a		м п	п п			es es	m m	m m
KRTS	aaaaa	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
1 000	* * A.A.	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
9 000	. ★ ★ ∃S	7	0		æ	m	4	11	15	21	9	5	0	2	-	0	-	0
9 000	WOR	0	ч	0	0	0	ĸ	10	19	27	15	m	0		-	0	0	0
3000 4000 6000 8000 1KRTS	G G01	~	0	0	0	0	æ	7	21	33	11	m	J	0	0	0	0	0
2000 30	EARIN	0	H	0	0	ı	m	7	14	35	15	4	0	0	0	0	0	0
	工 * * * *	0	0	0	0	ı	0	4	10	44	18	m	0	0	0	0	0	0
500 1000		0	0	0	0	0	1	ς	17	39	16	7	0	0	0	0	0	0
Ś	YAAA.																	
KRTS	AAAAAAAAAA	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
000	4XXXX	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0
900 8	VAMAN	н	7	0	-	4	12	12	16	20	9	m	7	-	0	0	0	0
000	AAAA	.0	0	0	0	0	e	14	14	35	10	2	1	0	Н	0	0	0
1000 4000	aaaa	0	0	0		0	П	9	19	35	14	m	н	0	0	0	0	0
00 30	aaaa.a	0	0	0	0	0	1	9	10	47	14	1	H	0	0	0	0	0
500 1000 2000 3000 4000 6000 8000 1	ааааа	0	0	0	0	0	٦	m	19	38	16	m	0	0	0	0	0	0
00 10	aaaaa	0	0	0	0	0	1	2	18	39	14	2	7	0	0	0	0	0
DB 5(	<u> аааааааааааааааааааааааааааааааааааа</u>	40	35	30	25	20	15	10	2	0	-5	-10	-15	-20	-25	-30	-35	-40

0.4 0.1 0.8 1.1 1.6 4.3 0.0 0.0 3.3 3.4 4.1 4.6 5.0 8.7 0.0 0.0 0.6 -0.1 1.6 2.0 1.6 4.1 0.0 0.0 4.7 4.8 7.1 7.1 7.9 11.5 0.0 0.0 0.6 0.4 0.4 1.0 1.8 6.1 0.0 0.0 4.9 4.6 4.7 5.9 6.6 10.6 0.0 0.0

	16	11.0	13.8	4.0	5.0	15.0	18.8
	15	11.0	13.8	4.0	5.0	15.0	18.8
	14	20.0	25.0	8.0	10.0	26.0	32.5
	13	20.0	25.0	8.0	10.0	26.0	32.5
	12	17.0	21.2	7.0	8.8	23.0	28.8
	11	17.0	21.2	7.0	8.8	23.0	28.8
	10	21.0	26.2	9.0	11.2	27.0	33.8
NUMBER	Q	5.0	6.2	2.0	2.5	7.0	8.8
ATEGORY	ω	36.0	45.0	10.0	12.5	42.0	52.5
$\sim$	1					•	
ਹ		16.0	20.0	7.0	8.8	22.0	27.5
Ö	9				31.2 8.8		
Ö		57.0	20.0	25.0		22.0	83.8
Ö	9	36.0 57.0	71.2 20.0	25.0	12.5 31.2	67.0 22.0	52.5 83.8
C	9	36.0 36.0 57.0	45.0 71.2 20.0	10.0 25.0	12.5 12.5 31.2	42.0 42.0 67.0 22.0	52.5 83.8
7D	9	16.0 36.0 36.0 57.0	45.0 45.0 71.2 20.0	7.0 10.0 10.0 25.0	12.5 12.5 31.2	22.0 42.0 42.0 67.0 22.0	52.5 52.5 83.8
7D	3 4 5 6	57.0 16.0 36.0 36.0 57.0	20.0 45.0 45.0 71.2 20.0	25.0 7.0 10.0 10.0 25.0	8.8 12.5 12.5 31.2	67.0 22.0 42.0 42.0 67.0 22.0	27.5 52.5 52.5 83.8

PAGE 3

COUNT OF PEOPLE IN THIS GROUP= 80 тезт 3 то 4 Адададададад

0.0 0.0 0.0 0.0 9.6 1.2 12.0 15.016 0.9 12.0 15 4.8 0.1 16.0 20.0 3.3 0.1 0.4 - 0.13.4 3.0 16.0 14.0 17.5 0.0 0.0 14.0 17.5 11 0.0 0.0 18.0 22.5 10 8.4 13.2 1.9 NUMBER 0.4 -0.2 -0.1 1.2 3.0 3.8 4.9 7.1 CATEGORY 26.0 32.5 4.7 14.0 5.5 0.5 53.0 0.0 0.0 26.0 32.5 0.0 0.0 26.0 32.5 0.4 7.5 11.7 9.0 14.0 17.5 6.4 6.0 53.0 5.2 4.8 4.7 1.2 26.0 0.9 - 0.2PERCENT WORSE

6.0

6.0

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BETTER PERCENT

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17.0

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20.0 25.0

20.0 25.0

27.0 33.8

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43.0 53.8

20.0 25.0

74.0 92.5

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PERCENT

EITHER

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TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 481

AAAA	AAAAAAAAAAA	AAAA		LEET EAR	EAR							RIGH	RIGHT EAR				•	•	6	COMBI	COMBINED EAR	AR 6000		3 TO TO
DB	500 1	000 20	300	000	9 0001	500 1000 2000 3000 4000 6000 8000		1KRTS	909	200 1000	2000	3000	4000	3000 4000 6000 8000 1KRTS	8000	KRTS	20	0 100	0 2000	3005	500 1000 2000 3000 4000 8000 8000 INNIS	0000		TUVI
AMMA	IAAAAA	aaaaa	KAAAA	aanaa	שאאא	KAAAA	ומממממ	<u>или илилилилилилилилилилилилилилилилили</u>	аайаа	· * * * *	**** HEARING GOT WORSE	ING C	SOT WC	RSE *	(X ****	ኒጂጜሊኒ	AAAAb	AAAAA	aaaaa	ሳልክልል	<u> алалиладалалалалалалалалалалалалададалалалал</u>	aaaa	AAAAA	KKKKK
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15	2	2	9	9	13	23	0	0		1	7'	9	11	23	0	0		2	ı	1	4 3		4 0	0
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S	82	75	63	94	87	73	0		92	2 87	77	97	98	63	0	0	, , ,	, 91	49 4	43 6	67 84	1 62	0	0
0	230	278	283	217	176	106	481	481	222	2 273	280	236	189	132	481	481	, a a	305 3′	378 363	3 313	3 265	5 1.84	481	481
3	98	82	71	74	11	68	0	0	06	0 78	74	85	83	80	0	0		10	39 6	58 6	62 72	? 91	1 0	0
-10	29	σ	26	37	53	09	0	0	30	0 18	1 20	23	28	65	0	0		17	4	7 1	6 1	6 58	0	0.
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-25	2	Н	0	0	0	7	0	0		0 0	1	0	-	2	0	0	e9 e9	0	0	₽	7	0	1 0	0
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-35	0	0	0	0	2	2	0	0		0	0	0	0	2	0	0	m m	-	0	0	0	0	0 0	0
-40	0	0	0	7	0	4	0	0	, ,	1 (	0 0	0	0		0	0	m m	0	0	0	0	0	1 0	0
AAAA	AAAAN	aaaaa	чаяай	aaaaa	aaaa	ኒልጜልጁ	aaaaa	, aababababababababababababababababababa	áaaaa		**** HEARING GOT	RING		BETTER	* * *	ааааа	аааа	aaaa	ааааа	(AAAA)	аалалалалалалалалалалалалалалалалалала	аааа	аааа <i>р</i>	AAAAA

-0.2 0.1 -0.2 0.3 0.6 -0.7 0.0 0.0 4.3 3.0 3.2 4.6 5.8 8.2 0.0 0.0 -0.2 -0.0 -0.1 0.4 0.8 -0.3 0.0 0.0 6.2 4.7 5.0 6.0 7.1 11.0 0.0 0.0 5.6 4.9 5.1 6.8 8.2 11.6 0.0 0.0 -0.5 0.1 -0.2 0.3 0.5 -1.7 0.0 0.0

	16	44.0 9.1	53.0 11.0	91.0 18.9
	15	9.1	53.0	91.0 18.9
	14	67.0 13.9	88.0 18.3	143.0
	13	67.0 13.9	88.0 18.3	143.0
	12	60.0	74.0 74.0 15.4 15.4	126.0 26.2
	11	60.0	74.0	126.0
	10	74.0	97.0 20.2	156.0 32.4
	σ	25.0	16.0 3.3	41.0
CATEGORY	æ	58.0 121.0 12.1 25.2	150.0 16.0 31.2 3.3	2 49.9
Ū	7	58.0	71.0	121.0
	9	290.0	300.0	419.0 87.1
	5	121.0 25.2	150.0 150.0 31.2 31.2	240.0
	4	121.0	150.0 31.2	240.0
	æ	58.0 12.1	150.0 300.0 71.0 31.2 62.4 14.8	240.0 419.0 121.0 49.9 87.1 25.2
	2	121.0 290.0 25.2 60.3	300.0	419.0
	ч	121.0 25.2	150.0 31.2	
		WORSE PERCENT	BETTER PERCENT	EITHER PERCENT

DATE= 941107

TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP= 481

4444	AAAAAAAAAAAAA	4444		TEET CAD	G V							n T C L	PICHT PAP						č	COMBINED FAR	n FAR			
DB	500 1	500 1000 2000	000	3000	4000	3000 4000 6000 8000		1KRTS	500	500 1000	2000	3000	3000 4000 6000		8000 1KRTS	KRTS	500	1000	2000	500 1000 2000 3000 4000 6000 8000 1KRTS	9 000	000	100 1K	RTS
AAAA	KAAAAA	aaaaa	AAAA	KANAN	naaaa	akaaa	aaaaa	ааааааааааааааааааааааааааааааааааааа	AAAAA	* * * *	HEARING		GOT WORSE		**** XX	aaaa	<i>Калаканалаканакакаканакакакакакакакакака</i>	AAAAA	aaaaa	aaaaa	aaaa	<b>ሲ</b> አልልል?	AAAA	AAA
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35	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0
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15	9	4	ß	11	11	20	0	0	ю	7	4	æ	13	11	0	0	. w .e		7	2	7	8	0	0
10	24	14	14	44	45	46	0	0	26	ω	19	41	40	38	0	0		9	5	21	20	24	0	0
S	85	102	101	124	92	69	0	0	108	82	89	113	111	74	0	0	3 74	47	57	103	83	74	0	0
0	232	272	278	214	208	137	481	481	219	294	310	203	193	139	481	481	3 317	375	373	295	292	201 ,	481 4	481
-5	92	71	20	9	73	87	0	0	89	73	59	71	67	86	0	0	3 70	48	36	49	57	16	0	0
-10	30	16	22	20	32	53	0	0	24	13	15	30	28	68	0	0	on	2	Ŋ	9	10	42	0	0
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-35	0	0	0	0	0	0	0	0	0	0	-	0	н	7	0	0	0	0	0	0	0	ч	0	
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EITHER PERCENT

## Appendix G: Shift Results for Military and Civilian Groups

Page Page	Shift Result
G-1	Test 1-2 Comparison - Military
G-2	Test 2-3 Comparison - Military
G-3	Test 3-4 Comparison - Military
G-4	Test 1-2 Comparison - Civilian
G-5	Test 2-3 Comparison - Civilian
G-6	Test 3-4 Comparison - Civilian

DATE= 941218

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COUNT OF PEOPLE IN THIS GROUP= 3029 TEST 3 TO 4

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6.4 13.0 219.0 7.2 195.0 395.0 395.0 13.0 195.0 6.4 219.0 397.0 307.0 10.1 659.0 21.8 13.1 14 397.0 659.0 21.8 13 13.1 307.0 10.1 248.0 8.2 18.4 11.1 558.0 12 337.0 248.0 8.2 558.0 18.4 11.1 11 337.0 333.0 713.0 10 436.0 11.0 14.4 CATEGORY NUMBER 120.0 85.0 203.0 1134.0 37.4 702.0 553.0 18.3 328.0 10.8 241.0 8.0 544.0 2459.0 81.2 702.0 1675.0 23.2 55.3 553.0 1567.0 18.3 51.7 544.0 1134.0 1134.0 18.0 37.4 37.4 S 702.0 553.0 18.3 328.0 10.8 241.0 8.0 2459.0 81.2 702.0 1675.0 23.2 55.3 553.0 1567.0 18.3 51.7 1134.0 37.4 PERCENT PERCENT PERCENT BETTER EITHER WORSE

PAGE

DATE= 941217

COUNT OF PEOPLE IN THIS GROUP= 2859 TEST 1 TO 2 AAAAAAAAAAAAA

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COUNT OF PEOPLE IN THIS GROUP= 2859 TEST 2 TO 3 AAAAAAAAAAAAA

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COUNT OF PEOPLE IN THIS GROUP= 2859 TEST 3 TO 4 AAAAAAAAAAAAA

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## Appendix H: Shift Results for Male and Female Groups

Page	Shift Result
H-1	Test 1-2 Comparison - Male
H-2	Test 2-3 Comparison - Male
H-3	Test 3-4 Comparison - Male
H-4	Test 1-2 Comparison - Female
H-5	Test 2-3 Comparison - Female
H-6	Test 3-4 Comparison - Female

COUNT OF PEOPLE IN THIS GROUP= 6207 TEST 1 TO 2 AAAAAAAAAAAA

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COUNT OF PEOPLE IN THIS GROUP- 6207 TEST 2 TO 3

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-25	12	6	4	10	13	50	0	0		11	2	4	5	თ	41	0	0	7	m	2	m	9	14	0	0
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PERCENT

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EITHER 2634.0 5270.0 1201.0 2633.0 2634.0 5270.0 1201.0 2633.0 PERCENT 42.4 84.9 19.3 42.4 42.4 84.9 19.3 42.4

TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 6207 AXAXAXAXAXAXA

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477.0 435.0 862.0 13.9 477.0 435.0 862.0 13.9 13.4 724.0 14 833.0 424.0 1568.0 1218.0 1218.0 1436.0 1436.0 6.8 25.3 19.6 19.6 23.1 23.1 833.0 13.4 724.0 591.0 9.5 707.0 12 707.0 591.0 9.5 11.4 919.0 14.8 791.0 10 235.0 NUMBER 197.0 3.2 7 CATEGORY 1325.0 688.0 1457.0 11.1 23.5 2498.0 5209.0 1189.0 2497.0 2498.0 5209.0 1189.0 2497.0 40.2 83.9 19.2 40.2 83.9 19.2 40.2 579.0 688.0 1457.0 1457.0 3407.0 11.1 23.5 23.5 54.9 579.0 1325.0 1326.0 3539.0 9.3 21.3 21.4 57.0 ß 1457.0 3407.0 23.5 54.9 7 1326.0 3539.0 21.4 57.0 EITHER PERCENT BETTER PERCENT PERCENT WORSE

I P P P P A R TEST 1 TO 2 AAAAAAAAAAAAA

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35	0	0	0	0	0	0	0	0		0	0	0	0	1	0	0	, ,,	0	0	0	0	0	0	0	0
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COUNT OF PEOPLE IN THIS GROUP= 365 TEST 2 TO 3 AAAAAAAAAAAAA

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56	49	09	46	73	0	0	• • •	63	52	99	61	53	19	0	0	n er e							0
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23.0

23.0

42.0

42.0

30.0 8.2

30.0

43.0 11.8

13.0 3.6

65.0 17.8

29.0

185.0

65.0 17.8

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185.0 50.7

65.0 17.8

BETTER PERCENT

29.0

41.0

41.0

33.0

33.0

45.0 12.3

15.0 4.1

69.0 18.9

29.0

203.0 55.6

69.0

69.0

29.0

203.0 55.6

69.0

WORSE PERCENT

9

15

13

12

11

10

50.0

50.0

78.0

78.0

60.0

60.0

82.0

27.0 7.4

126.0 34.5

55.0 15.1

305.0 83.6

126.0 34.5

126.0 34.5

55.0 15.1

305.0 83.6

126.0 34.5

EITHER PERCENT

DATE= 941222

TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 365 AKAKAKAKAKAKAKA

MANIMARIAN   Manimari   Manimar	AAA	ААААААААААА	AAAAA		t in the	9 4 9								PIGH	PICHT FAR							J. J. J.	COMBINED FAR	FAR			
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4         6         6         7         6         6         6         6         6         7         6         7	AAAU	KAAAA	aaaaa	AAAAA	AAAAA	MAAA	LAAAA	AAAAA	aaaaa	aaa	ጸዳዳዳ			ING GC	JT WO!			(ARAAR)	âaaaa	aaaa	ኒጜዺዺ	KAAAA	VAAAA	ааааа	aaaa	AAAA	\ \ \
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2         3         2         4         4         4         2         3         5         14         0         3         14         15         4         4         4         2         3         5         14         0         4         1         6         4         4         1         2         14         0         0         4         1         2         3         6         1         4         4         4         4         4         1 <td>20</td> <td>-</td> <td>0</td> <td>2</td> <td>2</td> <td>2</td> <td>m</td> <td>0</td> <td>0</td> <td></td> <td>8</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>7</td> <td>0</td> <td>0</td> <td></td> <td>0</td> <td>7</td> <td>1</td> <td>0</td> <td>2</td> <td>ŋ</td> <td>0</td> <td>0</td>	20	-	0	2	2	2	m	0	0		8	0	0	0	0	7	0	0		0	7	1	0	2	ŋ	0	0
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EITHER PERCENT

## Appendix I: Shift Results for Ethnic Groups

<u>Page</u>	Shift Result
I-1	Test 1-2 Comparison - Whites
I-2	Test 2-3 Comparison - Whites
I-3	Test 3-4 Comparison - Whites
I-4	Test 1-2 Comparison - Hispanics
I-5	Test 2-3 Comparison - Hispanics
I-6	Test 3-4 Comparison - Hispanics
I-7	Test 1-2 Comparison - Blacks
I-8	Test 2-3 Comparison - Blacks
I-9	Test 3-4 Comparison - Blacks

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TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 3252 KAKAKAKAKAKAKA

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8 9 316.0 128.0 741.0 701.0 1461.0 885.0 1934.0 409.0 885.0 885.0 1934.0 409.0 27.2 59.5 12.6 27.2 27.2 59.5 12.6 325.0 10.0 EITHER 1461.0 2776.0 701.0 1461.0 1461.0 2776.0 PERCENT 44.9 85.4 21.6 44.9 44.9 85.4 741.0 741.0 1699.0 22.8 22.8 52.2 325.0 7 741.0 1699.0 22.8 52.2 BETTER PERCENT PERCENT WORSE

TEST 2 TO 3 COUNT OF PEOPLE IN THIS GROUP= 3252 AAAAAAAAAAAAAAA

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TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 3252 AAAAAAAAAAAAAAAAA

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8 9 97.0 235.0 7.2 791.0 630.0 630.0 1273.0 19.4 39.1 384.0 11.8 282.0 630.0 630.0 1738.0 19.4 19.4 53.4 791.0 1811.0 384.0 791.0 791.0 1811.0 24.3 55.7 11.8 24.3 24.3 55.7 630.0 1273.0 1273.0 2683.0 19.4 39.1 39.1 82.5 S 282.0 8.7 1273.0 2683.0 39.1 82.5 630.0 1738.0 19.4 53.4 BETTER PERCENT EITHER PERCENT PERCENT WORSE

TEST 1 TO 2 COUNT OF PEOPLE IN THIS GROUP= 2038 AAAAAAAAAAAAAA

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7 7 3	3 15	13	44	0	• • •	0	2	8	16	24	32	0	0	4	7	7	9	Q)	20	0	0
38 18 19	9 39	62	105	0	0	29	13	16	46	56 1	107	0	0	10	89	10	23	56	51	0	0
164 101 104	4 168	232	241	0	0	141	102	16	166 2	221 2	251	0	0	11	51	40	98	127	144	0	0
521 477 469	9 534	495	409	0	0	483	448	412	513 4	490 4	404	0	0	374	305	293	395	436	440	0	0
767 922 942	2 825	724	545 2	2038 20	038	814	606	086	7 061	735 5	574 20	2038 20	2038	1229	1373	1422	1257	1142	937 2	2038 21	2038
398 421 401	1 361	339	372	0	0	391	454	443	394	366	381	0	0	276	256	239	221	232	302	0	0
97 70 69	9 58	109	170	0	0	132	81	65	87	95 ]	170	0	0	55	34	23	21	41	92	0	0
26 12 12	2 7	28	69	0	0	24	19	12	13	25	47	0	0	7	9	4	10	12	29	0	0
9 2 6	5 12	O	30	0	0	83	2	Т	2	œ	28	0		-	0	2	7	er)	10	0	0
3	3 4	æ	7	0	0	2	0	8	2	2	12	0	0	-		0	2	0	7	0	0
1 1 0	0 2	ю	9	0	0	٦	1	0	1	e	7	0	0	0	0	0	0	0	0	0	0
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0.0 0.0 0.4 0.3 0.3 1.0 1.2 1.0 0.0 6.3 4.5 3.6 4.4 3.8 0.0  $0.3 \ 0.1 \ 0.2 \ 1.1 \ 1.4 \ 1.1 \ 0.0 \ 0.0$ 6.0 6.8 8.6 0.0 10 CATEGORY NUMBER 8 9 5.2 4.9 6.1 0.0 0.0 0.4 0.5 1.3 1.5 1.1 0.0 9.2 0.0 7.1 6.3 5.5 5.3 0.8 6.2

180.0 8.8

180.0 8.8

287.0

287.0

229.0 11.2

229.0 11.2

338.0 16.6

127.0

551.0 27.0

216.0

551.0 1283.0 27.0 63.0

551.0 27.0

551.0 1283.0 216.0 27.0 63.0 10.6

WORSE PERCENT 123.0 6.0

123.0 6.0

193.0 9.5

193.0 9.5

142.0

142.0 7.0

201.0

52.0

 $\frac{316.0}{15.5}$ 

135.0

892.0 43.8

316.0 15.5

316.0 15.5

135.0 6.6

892.0 43.8

316.0 15.5

BETTER PERCENT 299.0 14.7

299.0 14.7

466.0 22.9

466.0

359.0 17.6

359.0 17.6

520.0 25.5

178.0 8.7

808.0 39.6

808.0 1720.0 343.0 39.6 84.4 16.8

808.0 39.6

343.0

808.0 1720.0 39.6 84.4

EITHER PERCENT DATE= 941217

ORD CONTON	COMBINED EAR	500 1000 2000 3000 4000 6000 8000 1KRTS 500 1000 2000 3000 4000 6000 8000 1KRTS	
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	RIGHT EAR	500 1000 2000 3000 4000 6000 8000 1KRTS	
	LEFT EAR	500 1000 2000 3000 4000 6000 8000 1KRTS	**************************************

2000 3000 4000 6000 8000 1KRTS	имиминаланананананананананананананананананан	0	0 0	0 0	0 0	0 0	0 0	0	0 0 .	2038 2038	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
000 80	чаааа	æ	٦	0	Э	14	4 4	188	419	874 20	339	118	19	o	2	2	2	7
9 000	aaaau	н	т	2	5	ထ	22	103	483	1116	236	43	14	en	7	2	0	0
000 4	aaaa	7	0	J	en	2	17	64	371	1258 1	569	40	Ŋ	m	е	0	н	0
000	LAAAAA	0	7	εņ	0	1	6	47	316	1432 1	188	36	H	0	e	н	0	0
500 1000 2	aaaa	0	7	2	0	2	9	42	367	1368	212	31	В	-	ю	0	0	0
200	iaaaa	0	0	2	1	9	13	54	402	1228	274	49	Ŋ	2	0	2	0	0
RTS	aaaaa	0	0	0	0	0	0	0	0	2038	0	0	0	0	0	0	0	0
8000 1KRTS	* AAA	0	0	0	0	0	0	0	0	2038 20	0	0	0	0	0	0	0	0
0009	3E * * *	7	7	2	13	52	108	285	415	524 20	336	182	69	25	7	2	2	٦
9 000	T WORSE	8,	0	4	S	24	44	199	530	702	355	127	23	15	4	8	2	0
3000 4	ING GOT	8	0	0	9	თ	35	147	483	857	340	117	30	S	4	8	1	0
2000 3000 4000	HEARING	m	0	0	7	4	24	127	494	938	352	72	13	8	7	0	0	0
500 1000	* *	2	0	0	٦	7	15	92	515	951	369	65	14	n	7	н	0	-
200	аааааааааа	m	1	2	2	9	27	137	525	808	403	6	21	2	1	2	0	2
S	AMĀ.	9 0			, , ,			• • •	• • •		, , ,			• • •			0	, ,
1KRT'S	AAAA	0	0	0	0	0	0	0	O	2038		J	•	•	0	•		_
	AAAAA	0	0	0	9	0	0	0	0	2038	0	0	0	0	0	0	0	0
0009	чайай	5	4	5	13	36	66	222	392	533	386	213	82	30	10	m	0	S
1000	<b>LAMA</b>	Э	ю	4	œ	17	61	247	522	667	337	121	27	o.	m	9	n	0
3000	አጸዳዲክ	т	0	ч	4	10	30	145	502	824	390	99	15	00	m	2	-	-
500 1000 2000 3000 4000 6000 8000	<u>аааааааааааааааааааааааааааааааааааа</u>	2	0	7	т	5	10	101	473	985	363	74	11	n	m	~		^
1000	עאאאא	7	Т	2	0	S	13	101	563	920	344	59	13	3	2	2	0	C
200	WAAAA	2	3	7	0	7	29	154	503	786	403	118	21	4	4	2	7	C
DB	aaaä	40	35	30	25	20	15	10	5	0	٦	-10	-15	-20	-25	-30	-35	0

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0.4 0.5 0.4 0.5 1.0 0.8 0.0 0.0 4.3 3.8 3.8 4.5 5.0 6.5 0.0 0.0 0.6 0.5 0.8 0.6 1.1 1.4 0.0 0.0 6.0 5.2 5.5 6.2 7.0 9.2 0.0 0.0 5.3 5.4 6.2 7.4 9.2 0.0 0.0 0.5 0.8 0.4 0.7 1.5 0.4 0.0 0.0 6.2

	16	162.0 7.9	119.0 5.8	270.0
,	14 15 16	162.0	119.0 5.8	270.0
	14	290.0 14.2	196.0 9.6	460.0
	13	290.0	196.0 9.6	460.0
	10 11 12 13	230.0	143.0 7.0	358.0 17.6
	11	230.0 11.3	143.0	358.0 17.6
<b>~</b>	10	326.0 16.0	224.0	514.0 25.2
Y NUMBE	თ	101.0	65.0	163.0 8.0
CATEGOR	9	539.0 540.0 1310.0 217.0 539.0 101.0 326.0 230.0 230.0 290.0 290.0 162.0 162.0 262.0 26.5 64.3 10.6 26.4 5.0 16.0 11.3 11.3 14.2 14.2 7.9 7.9	371.0 371.0 1005.0 138.0 371.0 65.0 224.0 143.0 143.0 196.0 196.0 119.0 119.0 18.2 18.2 49.3 6.8 18.2 3.2 11.0 7.0 7.0 9.6 9.6 5.8 5.8	829.0 830.0 1756.0 343.0 829.0 163.0 514.0 358.0 358.0 460.0 460.0 270.0 270.0 40.7 40.7 86.2 16.8 40.7 8.0 25.2 17.6 17.6 22.6 22.6 13.2 13.2
	7	217.0	138.0	343.0
	5 6	1310.0	1005.0	1756.0
	5	540.0	371.0 18.2	830.0 40.7
	4	539.0 26.4	371.0 18.2	829.0 40.7
	e	217.0	138.0	343.0 16.8
	2	540.0 1310.0 217.0 26.5 64.3 10.6	371.0 1005.0 138.0 18.2 49.3 6.8	830.0 1756.0 343.0 40.7 86.2 16.8
	н			
		WORSE PERCENT	BETTER PERCENT	EITHER PERCENT

TEST 3 TO 4 COUNT OF PEOPLE IN THIS GROUP= 2038 AAAAAAAAAAAAAAA

COMBINED EAR 2000 3000 4000 6000 8000 1KRTS	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa		0 0 0 1 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 2 0 0 1 4 0 1 1 3 0	0 0 1 0 0 0 2 0 0 1 4 0 1 1 3 0 2 2 8 0	0 0 1 0 0 0 2 0 0 1 4 0 1 1 3 0 2 2 8 0 9 15 33 0	0 0 1 0 0 2 0 0 1 4 0 1 1 3 0 2 2 8 0 9 15 33 0	0 0 1 0 0 2 0 1 4 0 1 1 3 0 2 2 8 0 60 76 100 0	0 0 1 0 0 2 0 1 4 0 1 3 0 2 2 8 0 9 15 33 0 260 76 100 0 266 299 314 0	0         0         1         0           0         0         2         0           0         1         4         0           1         1         3         0           2         2         8         0           4         15         33         0           5         15         100         0           26         299         314         0           1264         1167         893         2038           368         379         447         0	0         0         1         0           0         0         2         0           0         1         4         0           1         1         3         0           2         2         8         0           6         15         33         0           5         76         100         0           266         299         314         0           1264         1167         893         2038           368         379         447         0           53         72         161         0	0         0         1         0           0         0         2         0           0         1         4         0           1         1         3         0           2         2         8         0           4         15         33         0           5         15         100         0           266         299         314         0           1264         1167         893         2038           368         379         447         0           53         72         161         0           53         20         49         0	0         0         1         0           0         0         2         0           0         1         4         0           1         1         3         0           2         2         8         0           4         15         33         0           56         76         100         0           1264         1167         893         2038           368         379         447         0           53         72         161         0           9         20         49         0           9         20         49         0           9         20         49         0           13         3         3         12         0	0         0         1         0           0         0         2         0           0         1         4         0           1         1         3         0           2         2         8         0           4         15         33         0           5         15         100         0           266         299         314         0           1264         1167         893         2038           368         379         447         0           53         72         161         0           53         72         161         0           53         3         12         0           33         3         3         0           43         2         0         0           53         3         3         0	0         0         1         0           0         0         2         0           1         1         4         0           1         1         3         0           2         2         8         0           5         15         10         0           266         299         314         0           1264         1167         893         2038           368         379         447         0           53         72         161         0           53         20         49         0           53         3         3         12         0           53         3         3         3         0           6         6         5         0         0           7         6         6         6         0           8         7         6         6         0           9         7         6         6         0           10         7         6         0         0           10         7         6         0         0           10         7	0         0         1         0           0         0         2         0           1         1         4         0           2         1         3         0           2         2         8         0           4         15         33         0           56         76         100         0           1264         1167         893         2038           368         379         447         0           53         72         161         0           6         20         49         0           7         3         12         0           8         3         3         12         0           1         1         5         0         0           2         3         3         3         0           3         3         3         3         3         0           4         3         4         3         0         0           5         4         6         5         0         0           6         7         6         7         0         0	0         0         1         0           0         0         2         0           1         1         4         0           2         2         8         0           2         2         8         0           4         15         33         0           5         15         10         0           126         299         314         0           5         161         0         0           5         72         161         0           6         20         449         0           7         2         161         0           8         379         449         0           5         3         2         0           6         2         49         0           7         3         3         0           8         3         3         0           9         2         3         0           1         1         1         0
haaaaaaaa		0 1	1 0	0	2 0	3 2	7 8	31 17	213 164 1	1309 1394 14	399 403	55 39	7 6	5 3	3	0	0	0 0	**** AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
	аааааааа ,	0	0		0		0		, m, m	2038 3 13	· • •	, n n	, ,	n n	0	e e	0		aaaaaaaa
8000	* * * *	5 0	1 0	3 0	17 0	30 0	72 0	169 0	314 0	560 2038	392 0	272 0	124 0	47 0	11 0	0 8	0 9	7 0	BETTER **** ]
3000 4000 6000	IG GOT WORSE	1 0	0 2	3	2 2	13 18	22 42	115 170	394 388	846 730	452 450	153 163	24 40	4 19	5 5	0 1	0 0	4 3	
0000	** HEARING	2 1	0 0	2 0	2 4	3 6	15	73	313	1018	471	102	3 19	7 8	2 3	2 3	0 0	2	* HEARING GOT
200 1000	KAAAAA **	0	-	m	2	7	16 11	67 53	346 265	857 970	566 595	147 105	12 18	on	0	ed .	0	4	\AAAA ****
	aaaaaaaa *	• 0 0	0 0	. 0 0	0 0	0 0	. 0 0	0 0	. 0 0	8 2038	0 0	. 0 0	0 0	0 0	. 0 0	. 0 0	. 0 0	. 0 0	ааааааа
0000 800	ኒልäääääää	9	0	<b>L</b>	٢	31	72	201	349	579 2038	393	248	84	45	9	4	<sub>0</sub>	9	ааааааа
3000 4000	KAAAAAAA	0 0	0	2 2	2 5	9	22 45	111 135	403 364	843 763	478 469	138 192	19 28	4 14	4 5	2 4	1 2	3 2	aaaaaaa
500 1000 2000 3000 4000 6000 8000	ааааааааааааааааааааааааааааааааааааа	п П	0	3 0	0	2 4	9 17	44 74	299 331	950 1014	602 479	107 94	14 12	5 7	0 1	2 1	0 0	0 0	азаяалалалалалалалалалалалалалалалалалал
500 10	aaaaaaa	40 1	35 1	30 3	25 1	20 6	15 15	10 92	5 342 2	0 837 9	-5 548 6	150	5 33	9 0	5 0	0 2	2 0	0 1	aaaaaaa
DB	¥	4	ю	e	2	2	7	٦			ı	-10	-15	-20	-25	-30	-35	-40	AA

-0.6 -0.7 -0.3 -0.3 -0.2 -0.8 0.0 0.0 4.1 3.6 3.6 4.2 4.8 6.6 0.0 0.0 -0.9 -1.1 -0.6 -0.3 -0.1 -1.4 0.0 0.0 5.8 5.2 5.5 6.3 7.2 9.6 0.0 0.0 -0.9 -1.1 -0.4 -0.4 -0.6 -0.5 0.0 0.0 5.9 4.9 5.1 6.0 6.8 9.0 0.0 0.0

			_			
	16	127.0	144.0	7.1	259.0	12.7
	15	127.0	144.0	7.1	259.0	12.7
	12 13 14 15 16	216.0	265.0	13.0	447.0	21.9
	13	216.0	265.0	13.0	447.0	21.9
	12	173.0	209.0	14.1 10.3 10.3 13.0 13.0 7.1 7.1	362.0	17.8
	11	173.0 8.5	209.0	10.3	362.0	17.8
~	10	244.0	287.0	14.1	491.0	24.1
Y NUMBER	σ	63.0	68.0	3.3	128.0	6.3
CATEGOR	7	401.0	485.0	23.8	807.0	39.6
	7	168.0 8.2	203.0	10.0	352.0	17.3
	9	1008.0	1287.0	63.2	733.0	85.0
	2				~	
		401.0	486.0	23.8	808.0 1	39.6
	4 5	401.0       401.0       1008.0       168.0       401.0       63.0       244.0       173.0       173.0       216.0       216.0       127.0       127.0       127.0       127.0       127.0       127.0       127.0       10.6       6.2       6.	485.0 486.0 1287.0 203.0 485.0 68.0	23.8 23.8	807.0 808.0 1	39.6 39.6 85.0 17.3 39.6 6.3 24.1 17.8 17.8 21.9 21.9 12.7 12.7
	3					
		WORSE 401.0 1008.0 168.0 401.0 401.0 PERCENT 19.7 49.5 8.2 19.7 19.7	BETTER 486.0 1287.0 203.0 485.0 486.0	23.8 63.2 10.0	EITHER 808.0 1733.0 352.0 807.0 808.0 1	39.6 85.0 17.3

DATE= 941216

COUNT OF PEOPLE IN THIS GROUP= 506 TEST 1 TO 2 AAAAAAAAAAAAA

																•			
KRTS	LAXAA	0	0	0	0	0	0	0	0	506	0	0	0	0	0	0	0	0	LARAR
8000 1KRTS	4,8,8,8,3	0	0	0	0	0	0	0	0	909	0	0	0	0	0	0	0	0	AAAAA
5000	4AAAV	7	0	0	0	е	10	37	111	195	16	34	11	-	4.	0	-	0	aaaaa
1D EAF	WAAAN	н	0	2	0	m	က	22	98	300	61	14	7	0	~	0	0	0	KAAAN
COMBINED EAR 3000 4000 6	AAAAA	ı	0	٦	0	0	4	16	19	328	29	16	2	0	0	0	0	0	VAAAAV
COMBINED EAR 2000 3000 4000 6000	AAAAA	0	-	7	0	0	1	83	4 9	370	63	11	0	7	0	0	0	0	<b>የ</b> ልጿልን
	aaaa	0	٦	1	<del>~ 1</del>	0	7	9	74	346	61	13	0	2	0	0	0	0	ኒላአጲል
500 1000	KAAKAAAAAAA **** HEARING GOT WORSE **** AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	0	0	0	2	-	en	თ	15	325	19	15	ഹ	4	0	0	0	0	**** дабабабабабабабабабабабабабабабабабабаб
	aaa *	<b>~</b> ~	m m			o	m m	. m. a				• •			* *	a a	a a	en en	XAX.
1 KRTS	ааааа	0	0	0	0	0	0	0	0	909	0	0	0	0	0	0	0	0	aaaa
8000 1KRTS	**	0	0	0	0	0	0	0	0	506	0	0	0	0	0	0	0	0	* * *
3 0000	* 3S	2	0	2	7	14	19	57	92	137	68	44	24	12	9	-	0	0	BETTER
EAR 000 6	T WOR		0	٦	7	4	ω	40	108	213	91	29	8	<del>~</del> 1	0	0	0	0	
RIGHT EAR 3000 4000 6000	NG GO	H	0	0	-	7	9	28	106	227	101	27	9	-	0	0	0	0	NG GC
2000 3	HEARII	0	٦	0	0	0	4	33	91	243	111	19	4	0	0	0	0	0	HEARING GOT
000	* * *	0	0	2	0	4	2	25	100	250	102	13	9	٦	-1	0	0	0	* * *
500 1000	aaaa	0	0	N.	~	8	10	2.9	110	212	100	33	4	, m	0	0	0	0	
	AAA	m m								, ,, ,						es es	e e		, KAN
KRTS	aaaaa	0	0	0	0	0	0	0	0	506	0	0	0	0	0	0	0	0	<b>чааааааааа</b> а
1 000	aaaa	0	0	0	0	0	0	0	0	909	0	0	0	0	0	0	0	0	MAMAN
8 000	AAAAA	П	<del>~</del>	e	7	12	19	99	11	138	98	63	21	7	4	7	7	2	AAAA
EAR 000 6	aaaaa	ო	0	0	0	S	15	44	104	205	96	21	7	S	0	7	0	0	AAAA
LEFT EAR 000 4000	MAAAA	2	0	0	٦	2	9	33	110	219	95	31	S	0	7	0	0	0	äääää
000	KAAAA	Э	0	0	0	-	44	10	81	280	102	12	σ	m	-	0	0	0	aaaaa
2 000	MAMAM	2	0	0	0	2	7	23	109	239	16	22	9	4	0	0	0	7	аааа
LEFT EAR 500 1000 2000 3000 4000 6000 8000	aaaaa	0	7	0	Н	Э	7	28	109	214	è.	36	11	m	8	0	0	8	ааааа
DB	ададададададададададададададададададад	40	35	30	25	20	15	10	3	0	င်	-10	-15	-20	-25	-30	-35	-40	акадакакакакакакака

-0.1 0.1 -0.0 0.4 0.8 0.1 0.0 0.0 4.7 4.2 4.1 4.5 5.1 7.1 0.0 0.0 0.3 0.3 0.1 0.2 0.7 0.5 0.0 0.0 6.1 5.5 5.1 5.8 6.4 9.8 0.0 0.0 6.8 6.0 5.7 6.3 7.1 10.0 0.0 0.0 -0.4 -0.0 -0.3 0.4 0.9 -0.1 0.0 0.0

16	1	36.0	7.1	40.0	7.9	71.0	14.0
1.5		36.0	7.1	40.0	7.9	71.0	
4		0.99	13.0	64.0	12.6	123.0	24.3
		0.99		64.0	12.6	123.0	24.3
1.5	1	59.0	11.7	50.0	6.6	104.0	20.6
Ξ	÷	59.0	11.7	50.0	6.6	104.0	20.6
٠,		70.0	13.8	0.99	13.0	128.0	25.3
C NUMBER		22.0		20.0	4.0	42.0	8.3
ATEGOR		110.0	21.7	0.60	21.5	203.0	40.1
0		_		7			
۰۲	•	58.0	11.5	45.0	6.8		19.4
٥		58.0	54.9 11.5	265.0 45.0	52.4 8.9	98.0	
O <u>L</u>	)	278.0 58.0	11.5	265.0 45.0	6.8	414.0 98.0	19.4
	2	110.0 278.0 58.0	54.9 11.5	109.0 265.0 45.0	52.4 8.9	203.0 414.0 98.0	81.8 19.4
Ľ	2	58.0 110.0 110.0 278.0 58.0	11.5 21.7 21.7 54.9 11.5	45.0 109.0 109.0 265.0 45.0	8.9 21.5 21.5 52.4 8.9	98.0 203.0 203.0 414.0 98.0	19.4 40.1 40.1 81.8 19.4
Ľ	2	278.0 58.0 110.0 110.0 278.0 58.0	54.9 11.5 21.7 21.7 54.9 11.5	265.0 45.0 109.0 109.0 265.0 45.0	52.4 8.9 21.5 21.5 52.4 8.9	414.0 98.0 203.0 203.0 414.0 98.0	81.8 19.4 40.1 40.1 81.8 19.4
Ľ	2	278.0 58.0 110.0 110.0 278.0 58.0	11.5 21.7 21.7 54.9 11.5	265.0 45.0 109.0 109.0 265.0 45.0	8.9 21.5 21.5 52.4 8.9	414.0 98.0 203.0 203.0 414.0 98.0	19.4 40.1 40.1 81.8 19.4

DATE= 941216

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COUNT OF PEOPLE IN THIS GROUP- 506 TEST 2 TO 3 AAAAAAAAAAA

AAAAAAAAAAAA	AAAAA	¥		000 000	מעט							RIGHT FAR	F.AR						ပ္ပ	COMBINED EAR	D EAR			
DB 5	00 10	000	500 1000 2000 3000 4000	000	1000	3 0005	6000 8000 1KRTS	KRTS	500	500 1000 3	2000 3	3000 4000 6000	000		8000 1KRTS	(RTS	200	500 1000 2	000	2000 3000 4000 6000	9 000		8000 1KRTS	RTS
наылынынынанананананананананананананан	ጸጸጸጸን	iaaaa	aaaaä	AAAA	ነጻጸጸለ	4AAAA?	<i></i>	AAAAAA	ааааааааа	* *	HEAR	NG GO	T WOR:	SE **	* AAU	ኒጸጸጸጸፉ	HEARING GOT WORSE **** AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	anaaa	aaaa	AAAAA	KAAAN	адада	aaaaa	AAA
40	7	0	0	0	1	0	0	0	0	0	0	0	-		0		0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	٦	0	0
30	. 0	0	0	0	0	7	0	0	н	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	m	2	0	0	2	2	<b>+</b>	2	0	9	0	0	<b>н</b>	0	0	0	7	0	0	0
20	ю	0	7	ന	0	14	0	0	0	2	7	1	S	10	0	0	0	0	1	7	2	2	0	0
15	10	S	е	ဆ	12	21	0	0	S	<b>E</b>	S	6	18	22	0	0	m	٦	н	n	2	10	0	0
10	31	16	22	28	45	63	0	0	34	20	30	41	45	90	0	0	15	10	11	14	26	34	0	0
ω Γ	107	93	115	122	106	102	0	0	107	101	109	104	114	98	0	0	79	63	74	84	63	106	0	0
0	211	273	265	220	200	132	506	506	214	257	254	229	197	140	506	506	311	372	362	339	297	229 5	506	506
5-	66	105	98	95	91	91	0	0	103	95	90	86	92	88	0	0	77	53	48	58	19	19	0	0
-10	35	11	7	21	29	39	0		24	19	14	17	24	57	0	0	15	9	7	2	11	34	0	0
-15	8	0	5	ß	13	30	0	0	11	4	2	4	9	25	0	0	S.	0	0	п	7	9	0	0
-20	0	<b>н</b>	0	က	m	9	0	, , ,	4	m	0	1	2	4	0	0	0	0	Т	0	ო	e	0	0
-25	0	٦	0	0	1	Н	0	0	7	0	0	0	0	2	0	0	0	0	J	0	7	0	0	0
-30	0	0	0	0	0	, <b>-</b> 1	0	. , ,	0	0	0	0	2	٦	0	0	0	Н	0	т	0	-	0	0
-35	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	Н	0	0
-40	-	٦	2	7	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AAAAA	(AAAA.	aaaaa	AAAA	waaa	KAAAA	aaaa	aaaaa	* AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	aaaaaa	* * *		HEARING GOT	T BET	TER *	X * * *	aaaaa	ВЕТТЕR **** АДАДАДАДАДАДАДАДАДАДАДАДАДАДАДАДАД	AAAAA	VAMMA	aaaaa	aaaaa	aaaaa	XXXX	AAA

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0.0 0.0 0.0 0.0 0.6 0.3 4.9 6.3 3.9 0.5 3.6 0.3 3,3 0.1 0.0 4.3 0.0 6.1 5.2 4.8 5.5 6.8 9.1 0.0 0.0 0.0 0.2 0.0 0.1 0.7 0.8 1.1 6.3 4.8 5.1 5.8 7.2 9.1 0.0 0.0 0.0 0.0 0.2 -0.0 0.4 0.4 0.3 0.6

41.0 34.0 73.0 73.0 66.0 52.0 10.3 114.0 22.5 114.0 66.0 13.0 52.0 10.3 86.0 17.0 54.0 35.0 54.0 35.0 6.9 86.0 17.0 56.0 126.0 24.9 78.0 15.4 10 CATEGORY NUMBER 23.0 15.0 36.0 121.0 23.9108.0 21.3207.0 31.0 50.0 78.0 15.4 292.0 57.7 250.0 49.4 409.0 80.8 121.0 23.9 108.0 207.0 121.0 23.9 108.0 21.3 207.0 50.0 31.0 78.0 292.0 57.7 250.0 409.0 207.0 121.0 108.0 21.3 EITHER PERCENT BETTER PERCENT PERCENT WORSE

COUNT OF PEOPLE IN THIS GROUP= 506 TEST 3 TO 4 AAAAAAAAAAAAA

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3	5		1 5 64	ተደርሞ የአር							RIGH	RIGHT EAR						Ö	COMBINED EAR	ED EAF	~		
DB 5	100	.000	000	3000	4000	500 1000 2000 3000 4000 6000 8000	8000	1KRTS	500	500 1000	2000	3000	3000 4000 6000 8000 1KRTS	9 0009	000 1	KRTS	200	1000	500 1000 2000 3000 4000 6000 8000 1KRTS	3000	9 000	8 0009	000	KRTS
ጸጸጸጸለ	AAAA	ואאאא	የጸጸዳት	AAAAA	aaaa	AAAAA	AAAAA	ааалалаланаалалалалалалалананалалалалал	MAMAM		HEAR	ING G	OT WOF	₹¥ ∃S}	* * A.A	XXXXX	**** HEARING GOT WORSE **** AAMAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	<b>SAAAA</b>	MAAAA	XXXXX	4AAAA?	አልጿል	aaaa	AAAA
40	٦	0	0	-	-	7	0	0	5	т	н	н	ч	ო	0	0	-	0	н	н	н	7	0	0
35	0	0	2	0	0		0	0	0	0	1	0	0	7	0	0	н			0	0		0	0
30	н	0	2	0	0	7	0	0	0	7	0	0	0	4	0	0	0	0	0	0	0	7	0	0
25	0	2	0	0	#	ß	0	0		0	0	0	0	e	0	0		0	ч	0	0	٦	0	0
20	-	ю	0	m	m	14	0	0	, n	0	1	m	7	16	0	0	0	2	0	7	2	က	0	0
15	er	8	-	ຕ໌	o.	21	0		, , o	4	m	თ	7	13	0	0	8	0	1	2	9	13	0	0
10	20	15	12	23	40	43	0	0	3 15	14	11	23	33	49	0	0	11	σ	2	11	10	38	0	0
ς,	82	83	11	105	93	80	0	0	. 92	72	85	66	98	83	0	0	4 6 4	39	43	26	12	68	0	0
0	224	273	287	221	197	133	909	506	228	266	275	234	193	159	909	506	330	376	397	353	311	231	909	909
ဌ	119	105	108	109	104	103	0	0	106	120	102	96	115	88	0	0	. 93	69	51	68	83	111	0	0
-10	45	16	11	32	41	63	0	0	42	23	21	30	38	50	0	0	18	10	S	11	16	27	0	0
-15	9	2	m	9	12	28	0	0	9	8	en -	9	7	24	0	0	4.	0	e	0	4	7	0	0
-20	ო	7	m	ત	κŋ	Q	0	0	, 0	ю	2	4	n	L	0	0		0	0	2	4	2	0	0
-25	0	0	0	-	0	8	0	0	. A	0	0	г	8	2	0	0	0	0	0	-	0	-	0	0
-30	0	0	0	0	0	2	0	0		0	0	0	8	0	0	0		0	0	0	0	0	0	0
-35	0	0	0	7	-	0	0	0	0	0	0	0	0	1	0	0	0	0	н	0	0	0	0	0
-40	7	0	0	0	7	0	0	0	0	0	rd	0	0	2	0	0	0	0	0	0	0	7	0	0
AAAAA	ቴዶዶዶ	KAAAA	aaaa	iakar <i>i</i>	SAKAN	KXXXX	ኒጂጂጂጂ	* ************************************	аядад	*** ¥	* HEARING	ING G	GOT BETTER		* * * *	(አልጿል	**** дададададададададададададададададад	аааа	aaaaa		aaaaa	aaaay	<b>አ</b> ልአልል	AAAA

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-0.5 -0.2 -0.1 -0.1 -0.3 0.1 0.0 0.0 4.7 3.6 4.1 4.3 4.9 6.9 0.0 0.0 -0.5 -0.6 -0.3 -0.0 -0.2 0.4 0.0 0.0 6.4 5.1 5.4 6.1 6.9 10.0 0.0 0.0 -1.0 -0.2 -0.2 -0.3 -0.2 -0.4 0.0 0.0 6.1 5.0 5.1 6.0 7.1 9.5 0.0 0.0

16	37.0 7.3	38.0	72.0	
15	37.0	38.0	72.0	
14	66.0 13.0	55.0 10.9	112.0	
13	66.0	55.0 10.9	112.0	
12	55.0 10.9	42.0	92.0 18.2	
11	55.0 10.9	42.0 8.3	92.0 18.2	
10	71.0	62.0 12.3	123.0	
NUMBER 9	17.0 3.4	17.0	34.0	
PATEGORY	55.0 107.0 10.9 21.1	111.0	198.0 39.1	
2	55.0	40.0	90.0	
ø	251.0 49.6	299.0 59.1	416.0 82.2	
ഗ	107.0	111.0 21.9	198.0 39.1	
4	107.0 21.1	111.0	198.0 39.1	
m		40.0	90.0 17.8	
2	251.0 49.6	299.0 59.1	416.0	
-	107.0	111.0	198.0 39.1	
	WORSE	BETTER PERCENT	EITHER PERCENT	